# Sensitivity to Beauty and Goodness:
# A Valid and Generalizable Personality Trait?

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## Abstract

Peterson and Seligman (2004) defined the character strength *appreciation of beauty and excellence* as the "...ability to find, recognize, and take pleasure in the existence of goodness in the physical and social worlds" (Haidt & Keltner, 2004, p. 537) and assumed it to encompass three dimensions, namely, physical beauty, skills or talent, and virtue or moral goodness. Diessner, Solom, Frost, Parsons, and Davidson (2008) proposed an alternative model, labeled *engagement with beauty*, which also comprised artistic and moral beauty but the sensitivity to natural beauty (instead of skills or talent) as a third dimension.

The similarities as well as the differences between these two models raised the question of the dimensionality of the sensitivity to beauty and goodness. To examine this issue, the *Appreciation of Beauty and Excellence Test* (ABET; Güsewell & Ruch, 2012), in which musical excerpts, paintings, poems, examples of skills, and displays of virtue had to be rated, was developed. In a next step, the ABET was included into a structural equation modeling analysis together with the Appreciation of Beauty and Excellence subscale of the *Values in Action Inventory of Strengths* (VIA-IS; Peterson, Park, & Seligman, 2005a) and the *Engagement with Beauty Scale* (EBS; Diessner et al., 2008). The resulting model, which was labeled *responsiveness to the good and beautiful*, was comprised of a second-order factor of overall *responsiveness* and three distinct but related dimensions: nature, artistic beauty, and non-aesthetic goodness.

Furthermore, the convergent and discriminant validity of the sensitivity to beauty and goodness was addressed by correlating it with (a) the disposition to experience seven distinct positive emotions, (b) sensation seeking, and (c) absorption. Finally, the scores of professional musicians, amateurs, and persons without musical practice on the dimensions of the *responsiveness* model were compared in order to establish the relation of the sensitivity to beauty and goodness with different degrees of involvement in musical practice.

## Zusammenfassung

Peterson and Seligman (2004) definierten den *Sinn für das Schöne und Exzellente* als "...Fähigkeit, Güte in der physischen und sozialen Welt zu finden, zu erkennen und sich an ihr zu erfreuen" (Haidt & Keltner, 2004, S. 537). Der *Sinn für das Schöne* umfasst die Empfindsamkeit für physische Schönheit, für Fähigkeiten oder Talente sowie für Tugend oder moralische Güte. Diessner, Solom, Frost, Parsons und Davidson (2008) schlugen *engagement with beauty* als alternatives Modell vor. *Engagement* beinhaltet ebenfalls künstlerische und moralische Schönheit, dazu aber Naturschönheit als dritte Dimension.

Die Ähnlichkeiten und Unterschiede dieser beiden Modelle führten zur Frage nach der Dimensionalität der Empfindsamkeit für das Schöne und Gute. Um dies zu untersuchen, wurde der *Appreciation of Beauty and Excellence Test* (ABET; Güsewell & Ruch, 2012) entwickelt, in dem Musikausschnitte, Gemälde, Gedichte sowie Leistungen und Beispiele moralischer Güte bewertet werden. Der ABET ging mit der *Sinn für das Schöne* Skala des Values in Action Inventory of Strengths (VIA-IS; Peterson, Park, & Seligman, 2005) und der *Engagement with Beauty Scale* (EBS; Diessner et al., 2008) in eine Strukturgleichungs-analyse ein. Das resultierende Modell, *responsiveness to the good and beautiful* genannt, umfasst einen Faktor zweiter Ordnung sowie drei unterscheidbare aber zusammenhängende Dimensionen: Natur, künstlerische Schönheit und nicht-ästhetische Güte.

Des Weiteren ging es um die konvergente und divergente Validierung der Empfindsamkeit für das Schöne und Gute, indem deren Zusammenhang mit Sensation Seeking, Absorption und der Disposition verschiedene positive Emotionen zu erleben untersucht wurde. Schliesslich wurden die *responsiveness*-Werte von Berufs- und Amateurmusikern sowie nichtmusizierenden TeilnehmerInnen auf signifikante Unterschiede hin geprüft, um festzustellen, ob zwischen der Empfindsamkeit für das Schöne und Gute und dem Grad der musikalischen Betätigung ein Zusammenhang besteht.

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## General Introduction



## Part I



## Part II



## Part III

# GENERAL INTRODUCTION

Aesthetic sensitivity and the human tendency to experience strong emotional responses to art, beauty, goodness, and excellence have been studied since ancient times in the context of philosophy and religion. In both of these traditions, theorists concentrated mainly on the characteristics of the objects that elicited these feelings, less on characteristics of those who appreciated them. The same tendency continued in the psychological approach to aesthetics. The main focus of research was on the objective features and *arousal potential* of different stimuli or objects of art, on their aesthetic evaluation, on their cognitive processing, as well as on emotional responses elicited rather than on individual differences in the sensitivity to beauty and goodness. Humanistic psychology - with its idea of an innate and powerful emotional response to beauty and excellence – brought in a new perspective on the question, and the center of interest changed: from responses to specific stimuli to the idea of a more general sensitivity to beauty, from the characteristics of an object to the personality of the observer.

More recently, the idea of a general sensitivity to beauty and goodness reappeared in the context of positive psychology. Peterson and Seligman (2004) introduced *appreciation of beauty and excellence* into their classification of character strengths; Diessner, Solom, Frost, Parsons, and Davidson (2008) framed *engagement with beauty* as a specific, emotional responsiveness to beauty. Neither for *appreciation* nor for *engagement with beauty* generalizability, content validity, structural validity, external validity, and substantive validity (i.e., the key aspects of a construct's validity, John & Soto, 2007) have been thoroughly addressed yet. Therefore, the main aim of the present research is a contribution to the further validation of the sensitivity to beauty and goodness.

The writing starts with a brief overview of philosophical and psychological approaches to aesthetics. After an introduction to positive psychology and to Peterson and Seligman's (2004) classification of character strengths and virtues, existing models of the sensitivity to beauty and goodness are presented together with corresponding measurement instruments and research on correlates and outcomes. The next section addresses awe as a specific emotional response to beauty and goodness. Finally, the research questions as well as specific aspects of the methodology are discussed. The subsequent three chapters consist of three papers describing studies that were conducted within the scope of this doctoral dissertation. The last part is a summary of the main results and a general discussion addressing the implications of the results for research and practice, the limitations of the studies, open questions, and an outlook on possible further research.

## The sensitivity to beauty and goodness in philosophy

The human tendency to experience strong emotional responses to different types of beautiful or good stimuli, the relations or even the unity between truth, beauty, and the good, as well as the differences or similitudes between natural and artistic beauty were largely discussed within the context of philosophy throughout cultures, civilizations, and centuries. Two core concepts consistently appear in all treatises and texts about aesthetics, *beauty* and the *sublime*. A thorough review of the literature on aesthetics and on these two concepts would go beyond the scope of this introduction.[1] However, mentioning a number of theorists along with their main thoughts is of interest, as they influenced and still influence psychological approaches to the beautiful and the good.

In the earliest cultures known, beauty, goodness, and truth were customarily related. The ancient Greeks did not distinguish beauty and the beautiful (i.e., *kallos* and *to kallon*) from the good (i.e., *agathon*); according to Ross (1998, p. 238), they understood beauty as:

[1] Accordingly, the present section is not based on original but on secondary literature: Ferguson (1998), Ross (1998), Saint Girons (1998), Vermeir and Funk Deckard (2012).

1. wonderful and supreme;
2. beyond all measures and distinctions, related to unlimit;
3. pertaining to all things;
4. pertaining to the gods, to nature and natural things, as well as to human beings and their works, including works of art;
5. pertaining to finite things, shapes, colors, sounds, thoughts, customs, characters;
6. inseparable from goodness and excellence (*aretê*);
7. pertaining to visible things more than to poetry and music;
8. order, arrangements, proportion of parts;
9. harmony, symmetry, measure;
10. that what is pleasant to sight and hearing.

Plato's writings about arts (mainly *Ion, Symposium*, and *Republic*) are considered as the earliest substantial contribution to aesthetics. They are a profound questioning as to the distinction between what is fine because it brings pleasure and what is genuinely good and beautiful. According to Plato, the beautiful itself is not accessible to the senses, but only to the intellect. Therefore, only the philosopher (and not the artist) can bring the truly good into the world, because only he understands what virtue is.

Plotinus assumed the soul to experience pleasure while contemplating beauty, as it recognizes a hint of the divine in any work of art. According to Plotinus, human beings undergo a development in their ability to react to beauty and excellence: they start from the contemplation of sensuous beauty and then delight in beautiful deeds, moral beauty, the beauty of institutions, thus gradually approaching the abstract, platonic type of beauty.

Antiquity has bequeathed us with only one treatise on the sublime, *Peri Hypsous* (On the Sublime). This book was revived in the Renaissance and attributed to a fictional author, Longinus. *On the Sublime* does not concern itself with defining the sublime theoretically but rather with finding by what means it can be elicited in the discourse or in the writing. In line with the anthropocentric tendency of Greek philosophy, Longinus concentrated on humankind more than on the external world although he did not exclude the idea of a natural sublime. He thought the sublime to be neither useful nor agreeable but rather to cause rapture or ecstasy, thus "uplifting" the soul (Longinus as cited in Saint Girons, 1998, p. 323).

At the end of the seventeenth century, under the influence of new *practica* with nature and of new scientific and technical discoveries, attention was no longer focused exclusively on the well-known, inhabited earth but directed to the mountain, the littoral, the sea, the desert. This new interest in nature contributed to the raise of the "natural sublime", defined as excessive grandeur or vastness, which overwhelms and elicits a "delightful horror" (Saint Girons, 1998, p. 325).

In the eighteenth century, with the rise of modern science, the beautiful universe apprehended in its perfection was replaced by an orderly universe apprehended through knowledge of its laws. With the opening of the world to exploration, beauty faded as category central to human relations with the world. Science divided itself from art, as humanity divided itself from nature, and reason from emotion and perception. Consequently, in the eighteenth century, beauty in art was understood as neither proportion nor harmony but as the absence of regularity, thus suggesting that beauty either cannot be defined or is subjective, that is resides in the mind and is a matter of *taste.* Taste – which was thought to be possessed only by few – became the dominant idea of art, together with feeling, sentiment, and pleasure. "Beauty is not a quality in things themselves. It exists merely in the mind which contemplates them" (Hume as cited in Ross, 1998, p. 241).

In his *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* (first published 1757), Burke systematically opposed the sublime to the beautiful. He held that the beautiful makes one languid and weak, and leads to inaction and indolence (vices according to Burke). In contrast, the sublime was supposed to strengthen the spirits and lead to virtue. Burke tried to methodize aesthetics, to go beyond subjectivity and relativism, to develop a real science of aesthetic experiences. He regarded beauty and the sublime as dependent on mechanical interactions between human sense and imagination on the one hand, and the external world on the other. Since these mechanical interactions were

understood as operating uniformly, they could be studied systematically. Burke held that beauty was caused by the sensible qualities of smallness, smoothness, delicacy, colorfulness, and variation, whereas the sublime was elicited by the opposite qualities of greatness, uniformity, powerfulness, obscurity, and vastness (Vermeir & Funk Deckard, 2012). Whereas beauty was thought to awaken a positive pleasure and to stimulate social emotions such as love, the sublime was described as eliciting terror, together with wonder and admiration.

Kant's *Kritik der Urteilskraft* (Critique of Judgment), published in 1790 and generally regarded as the foundational treatise in modern philosophical aesthetics, is about aesthetic judgments. According to Kant, all aesthetic judgments are based on feelings of pleasure or displeasure. He distinguished three kinds of aesthetic judgments: judgments of the agreeable, judgments of beauty (i.e., judgments of taste), and judgments of the sublime. Judgments of beauty are based on disinterested feelings of pleasure, meaning that they do not depend on the subject's having a desire for the object or of the object generating such a desire. This purposelessness distinguishes them from judgments of the agreeable, which are the kind of judgment expressed by saying that one likes something or finds it pleasing (for example food or drink), and from judgments of the good (moral and non-moral goodness). The sublime is restricted to judgments on natural objects alone, because the natural sublime provides a clear instance of an individual judgment that can appeal to no evidence outside itself: one can neither solicit confirmation from other individuals nor appeal to the conventions and conditions under which the object was produced. According to Kant, the sublime aesthetic experience involves treating what was not produced to be meaningful to us as if it were meaningful, "purposiveness without purpose", as he puts it (Kant as cited in Ferguson, 1998, p. 327). Two types of sublime can be experienced: natural objects of great magnitude (mathematical sublime) and objects extremely powerful or phenomena capable of exciting

fear (dynamical sublime). Finally, sublimity is not a characteristic of the natural object but a property of the human mind, a form of human self-awareness.

In his brief essay *On the Sublime* (1801), Schiller goes into the same direction, stressing the subjective character of the aesthetic experience. He too distinguishes the sublime from the beautiful, assuming the beautiful to be an expression of freedom within the human nature, whereas the sublime is independent from the sensuous world and elevates the human being above his nature. The beautiful ties the human being to the world of senses, the sublime frees him of it.

To some extent in the nineteenth and most notably throughout the twentieth century, as the cult of the artist arose, as economic development transformed and threatened the beauties of nature, as artists insisted that art is to be pursued for its own sake, beauty partly lost its place of honor in relation to nature and art. Even so, many twentieth century philosophers and artists continued to speak of beauty. Three different conceptions may be distinguished: (1) beauty is what pleases, (2) beauty is related to nature and to the divine, or (3) beauty is linked with truth and the good. This latter approach lead to the postmodernist ideas that ugliness, disruption, fascination, frenzy, rapture, violence, and terror belong to art and nature, together with order and perfection; that beauty can include these extremes to express truth; and that art should no longer be neutral, but ethical and political.

The main keywords or ideas to retain from this short digression into the field of philosophy are (a) the ancient Greeks' conviction that beauty is inseparable from goodness and excellence, (b) Plotinus' idea that human beings undergo a development in their ability to react to beauty and excellence, (c) Longinus' description of the sublime as causing rapture or ecstasy and "uplifting" the soul, (d) the emergence, in the seventeenth century, of the concept of the "natural sublime", defined as excessive grandeur or vastness which overwhelms and elicits a "delightful horror", (e) the eighteenth century's idea that beauty is not a quality in

things themselves, but a matter of *taste*, (f) Burke's attempt to develop a real science of aesthetic experiences, (g) Kant's distinction between judgments of the beautiful and judgments of the sublime: both are disinterested and elicited by feelings of pleasure or displeasure, but only the sublime aesthetic experience involves treating what was not produced to be meaningful, and finally (f) the separation of beauty from art at the beginning of the twentieth century, together with the postmodernist conception of beauty as linked to truth and moral goodness. Interestingly, all of these main ideas later reappeared in or contributed to psychological approaches of the sensitivity to beauty and goodness.

## The sensitivity to beauty and goodness in psychology

Since its foundation as a modern science in the second half of the 19th century, psychology had a steady interest in art and aesthetics. Experimental aesthetics emerged with Fechner's (1876) *Vorschule der Aesthetik* and with his methodological innovations to empirically studying beauty, art, and general principles of good taste. However, after this promising start, the behavioral emphasis on observable action over inner experience lead to a transient neglect of empirical research in aesthetics during the first half of the twentieth century.

### Experimental aesthetics

The topic reappeared in the 1960s, when experimental psychologists started studying hedonic qualities of different stimuli, artistic or otherwise. A landmark in the modern study of emotional responses to art is Berlyne's (1971, 1974) development of the so called "new experimental aesthetics". Berlyne's idea was that each stimulus has objective features (i.e. collative variables), such as novelty, complexity, uncertainty, or conflict and that emotional responses to a stimulus are dependent on the arousal potential of these features. This theory proved to be fruitful: in the following decades many studies examined subjective reactions to different types of stimuli such as random polygons (Looft & Baranowski, 1971), patterns or

designs (Zuckerman, Bone, Neary, Mangelsdorf, & Brustman, 1972), authentic visual art (Furnham & Avison, 1997; Furnham & Bunyan, 1988; Zaleski, 1984; Zuckerman, Ulrich, & McLaughlin, 1993), musical excerpts (Dollinger, 1993; Litle & Zuckerman, 1996; Rawlings, Barrantes i Vidal, & Furnham, 2000), or humor (Ruch, 1988). Although the psychobiological assumptions of Berlyne are now known to be wrong and psychology moved away from arousal models and the concept of "arousal" itself (Neiss, 1988; Silvia, 2005a, 2005b), contemporary research on experimental aesthetics still takes inspiration from Berlyne's work. As the scope of aesthetics becomes broader, new types of stimuli such as web design (Tuch, Bargas-Avila, & Opwis, 2010) or mundane topics such as selecting a paint color for the home (Whitfield & Destefani, 2011) are examined. Moreover, old questions such as the link between the Golden Section and rectangle preferences (McManus, Cook, & Hunt, 2010) or preference for and harmony of color combinations (Schloss & Palmer, 2011) are revisited.

During the last decades, researchers in experimental aesthetics have begun to put their findings together, thus going beyond the tradition of classical psychophysics where the effects on experience are studied through systematic variation of stimulus features, preferably along a single well-controlled dimension: they conceived information processing models identifying the whole set of factors that enter into play in aesthetic experiences, these factors' interactions, and the sequence of the information processing stages (Chatterjee, 2003; Jacobsen, 2006; Leder, Belke, Oeberst, & Augustin, 2004).

The development of new neuroscientific methods, their increasing availability, as well as the growing number of researchers interested in the biological foundations of art and aesthetics have contributed to the emergence of neuroaesthetics as a proper research field in the last ten years. One empirical approach is to explore the impact of brain damage and neural degeneration on the production and appreciation of art and on aesthetic experiences (Halpern, Ly, Elkin-Frankston, & O'Connor, 2008; Halpern & O'Connor, 2013; van Buren,

Bromberger, Potts, Miller, & Chatterjee, 2013). A second approach uses neuroimaging methods to study the role of different neural processes involved in aesthetic experiences of healthy individuals. Some studies relied on EEG to examine a variety of questions regarding the speed and time course of aesthetic experiences (Augustin, Defranceschi, Fuchs, Carbon, & Hutzler, 2011; Schacht, Werheid, & Sommer, 2008). Other studies used functional MRI to investigate the neurobiology of aesthetic engagement in different domains: painting (Vartanian & Goel, 2004), sculptures (Jacobsen, Schubotz, Hofel, & Cramon, 2006), design (Reimann, Zaichkowsky, Neuhaus, Bender, & Weber, 2010), architecture (Kirk, Skov, Christensen, & Nygaard, 2009), dance and body postures (Calvo-Merino, Urgesi, Orgs, Aglioti, & Haggard, 2010), music (Brattico & Pearce, 2013; Müller, Höfel, Brattico, & Jacobsen, 2010; Salimpoor, Benovoy, Larcher, Dagher, & Zatorre, 2011; Salimpoor & Zatorre, 2013), and faces (Vartanian, Goel, Lam, Fisher, & Granic, 2013; Winston, O'Doherty, Kilner, Perrett, & Dolan, 2007).

**Appraisal theories of emotions**

Emotion psychology offers other approaches and theories to the understanding of aesthetic experiences. In recent years, appraisal theories of emotions such as Konecni's (2005) Aesthetic Trinity Theory have emerged as a leading perspective on the question (Ellsworth & Scherer, 2003; Konecni, 2008; Lazarus, 1991; Roseman, 2001; Scherer, 2001). The central assumption of all appraisal theories is that it is neither events nor stimuli themselves which cause emotions, but the evaluations of these events or stimuli (Roseman & Smith, 2001; Konecni, 2008). This subjective approach to emotions clearly diverges from Berlyne's tradition which connected aesthetic responses to "objective" features of the stimuli. A second assumption is that each emotion has its own, unique appraisal structure which differentiates it from other emotions (Roseman & Smith, 2001; Silvia, 2005a, 2005b). This raises the question of how people respond to objects of beauty in the visual arts (Oatley,

2002) or in music (Collier, 2002; Gabrielsson & Juslin, 2003; Juslin & Laukka, 2004; Juslin, Liljeström, Västfjäll, Barradas, & Silvia, 2008; Zentner, Grandjean, & Scherer, 2008) and if there is a specific emotion related to the perception of beauty (Ekman, 1992; Lazarus, 1991; Frijda, 1987; Keltner & Haidt, 2003).

Whereas the "new experimental aesthetics" assumed a direct link between collative variables and emotional responses, and thus offered no explanation for individual variations in responsiveness to a particular stimulus, appraisal theories of emotion proposed a theoretical frame for understanding why different persons may react differently to similar stimuli or situations and why in similar situations the same person may experience different emotions at different times. This differential perspective on emotional reactions to art and to aesthetics is of particular interest within the scope of the present research on the sensitivity to beauty and goodness as a trait of character. However, appraisal theories left unexplained how inter- and intrapersonal differences in appraisal (and thus in emotional responses) might come about. Individual differences in cognitive structures or in cognitive processing might be an explanation. For example, Axelsson (2007) developed an interesting framework founded on Eckblad's (1981) scheme theory. According to this theory, mental representations – schemes – develop through four phases, namely, (a) nonexistent scheme, (b) recognitory scheme, (c) predictive scheme, and (d) habitual scheme. A new, complex stimulus may resist assimilation to an existing scheme and thus elicit emotional responses; the nature or intensity of these emotional responses are dependent on both the degree of elaboration of the scheme and the degree of assimilation resistance.

**Individual differences in the sensitivity to art and beauty**

Personality psychology with its focus on and models of individual characteristics that uniquely influence cognitions, emotions, motivations, and behaviors in various situations offers still other approaches to explain interpersonal differences and intrapersonal variability

in responses to aesthetic stimuli. In the humanistic perspective, Maslow (1964) proposed that there were large individual differences in the degree to which people experienced beauty and were open to what he called "peak experiences". He distinguished between "peakers" and "non-peakers" and held that in any religion or culture there are persons who "…have private, personal, transcendent, core-religious experiences easily and often and who accept them and make use of them, and, on the other hand, those who never had them or who repress or suppress them and who, therefore, cannot make use them for their personal therapy, personal growth, or personal fulfillment" (Maslow as cited in Peterson and Seligman, 2004, p. 544). Whether or not someone is prone to peak experiences largely depends on his or her location on Maslow's (1970) hierarchy of needs. On the lower four levels of this pyramid (physiological needs, safety, belongingness and esteem needs), the focus is on overcoming deficiencies which leaves very little latitude for preoccupation with the beautiful and the good. But if somebody has satisfied these basic needs and reaches the fifth level of the pyramid, the highest level, where cognition changes from D-cognition (overcoming deficits) to B-cognition (a more receptive and holistic mode of being), he or she is able to take joy and pleasure in aesthetic and non-aesthetic goodness[2]. Only on this last level, self-fulfillment and peak-experiences are possible.

There is increasing consensus among psychological theorists and researchers that there are five basic dimensions of personality (i.e., the "Big Five"), namely, Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Within this Five Factor Model of personality, the trait Openness to Experience defined as interest in novel ideas, fantasy, and aesthetics, as having unconventional values, and as a predilection for excitable feelings and actions motivated by broad interests and curiosities (Costa & McCrae, 1992) comprises a facet (i.e., subscale) highly relevant to aesthetic sensitivity:

[2] In accordance with Haidt and Keltner (2004), the term "aesthetic goodness" is used to address beauty in the physical world, "non-aesthetic goodness" to label goodness in the social world.

Openness to Aesthetics. Openness to Aesthetics is described as "a deep appreciation for art and beauty" (Costa & McCrae, 1992, p. 17). High scorers are assumed to use art to expand their knowledge, whether they have talent and good taste or not, and described as being inventive and idealistic (Costa & McCrae, 1992).

**Relation between personality characteristics and aesthetic preferences**

A first line of research on the relation between personality characteristics and aesthetic preferences attempts to derive aesthetic factors from empirical data on artistic preferences. One of the earliest studies of this type was carried out by Burt (1934) who presented participants with a series of postcards they had to rank in order of preference. These evaluations were compared to those a group of experts had made and the correlations between these two ratings factor analyzed. Results indicated the existence of a general factor of aesthetic judgment and, additionally, of different bipolar factors for different types of artistic preference which seemed to be linked with individual differences in personality. Eysenck (1941) extended this approach using a much larger pool of visual stimuli. He found two factors, a general factor of good taste (T) and a bipolar factor (K) determining the preference for either modern, impressionistic, colorful art or for older, more traditional, and less colorful art.

Another line of research examines if and how personality characteristics assumed to be art-relevant relate to aesthetic preferences. A personality construct which has been widely investigated within this line of research is *sensation seeking*. Sensation seeking is defined as "the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience" (Zuckerman, 1994, p. 27). According to Zuckerman (2006), every individual has an optimal level of stimulation which depends on genetically regulated biological mechanisms and affects his sensory and emotional preferences. High sensation seekers are assumed to have a

high optimal level of stimulation, therefore to seek novel and intense sensory stimulations and to prefer stimuli with a high arousal potential. Low sensation seekers, in turn, are expected to favor stimuli with low arousal potential.

The *Sensation Seeking Scales Form V* (SSS-V; Zuckerman, 1994) is one of the most widely used inventories for the measurement of sensation seeking, although low internal consistencies as well as problems with the replication of the factor structure were repeatedly reported. In comparison to alternative instruments, the SSS-V has the advantage of a more differentiated measurement of the construct: it comprises four subscales of 10 items each, namely, thrill and adventure seeking (TAS = desire to engage in sports or other physically risky activities that provide unusual sensations of speed or defiance of gravity, such as parachuting, scuba diving, or skiing), disinhibition (DIS = seeking sensation through social activities like parties, social drinking, and sex), experience seeking (ES = seeking of novel sensations and experiences through the mind and senses, as in arousing music, art, and travel, and through social nonconformity, as in association with groups on fringes of conventional society (e.g., artists, hippies, homosexuals), and boredom susceptibility (BS = intolerance for repetitive experience of any kind, including routine work and boring people). The SSS-V uses a dichotomous forced choice answer format. Zuckerman (1994) reported internal reliabilities of the total score ranging from .83 to .86; the subscale alphas were: TAS, .77 to .82; DIS, .74 to .78; ES, .61 to .67; BS, .56-65.

A substantial number of studies have examined the relation between sensation seeking and the preference for different visual or acoustic stimuli. Sensation seeking has been found to distinguish individuals who prefer complexity in simple polygons (Looft & Baranowski, 1971; Rawlings, Twomey, Burns, & Morris, 1998) or in more complex, asymmetrical line drawings (Zuckerman et al., 1972). On the other hand, the scale proved to be unrelated or negligibly related to preference for complex over simple paintings (Furnham & Avison,

1997; Osborne & Farley, 1970; Zuckerman, Ulrich, & McLaughlin, 1993). With respect to paintings, high sensation seekers have been found to show some preference for nature paintings defined as "high in tension" over those "low in tension" (Zuckerman et al., 1993) and for art which is abstract or surrealistic rather than representational (Furnham & Avison, 1997; Furnham & Bunyan, 1988). High scoring subjects also prefer emotionally arousing themes, whether positive (e.g., erotic) or negative (e.g., violent), in paintings (Tobacyk, Myers, & Bailey, 1981; Zaleski, 1984) or in video and film (Litle & Zuckerman, 1986). With respect to music preferences, Glasgow, Cartier, and Wilson (1985) examined preferences for different types of classical music but failed to find any significant correlation between these excerpts and sensation seeking. Litle and Zuckerman (1986) developed a Music Preference Scale which included all established, commercial music categories (i.e., not only classical music) and found that sensation seekers liked all types of rock music, but disliked film and TV soundtrack music. Using an updated version of this scale, Rawlings, Barrantes i Vidal, and Furnham (2000) found that high scorers tended to prefer "hard" forms of music (e.g., heavy metal or grunge) but to dislike "soft" forms (e.g., soundtrack, top-10 pop). Rawlings et al. (1998) correlated measures of sensation seeking with liking for major music types and eight categories of painting. Their findings showed that the liking for hard rock music went together with the liking for violent-abstract art, and the liking for easy-listening music with the liking for neutral-realistic art. Finally, Savary (2011) investigated the relations between music preferences, humor preferences, and sensation seeking; he could show that high sensation seeking scores went together with the preference for complex music (e.g., jazz or 20th-century classical music) and for complex humor (e.g., nonsense humor).

Another personality construct of interest with respect to aesthetic preferences, though less investigated than sensation seeking until now, is *absorption*, described as the disposition for "having episodes of 'total' attention that fully engage one's representational (i.e.,

perceptual, enactive, imaginative, and ideational) resources" (Tellegen & Atkinson, 1974, p. 268). These episodes may have a " peak-experience-like quality" (Tellegen, 1992, p. 1) and "result in a heightened sense of the reality of the attentional object, imperviousness to distracting events, and an altered sense of reality in general, including an empathically altered sense of self" (Tellegen & Atkinson, 1974, p. 268). This definition has a striking resemblance with Maslow's (1964) B-cognition which is described as contemplating an object with "total attention" (Maslow, 1968, p. 70) outside of any context of practical usefulness or purpose.

The *Tellegen Absorption Scale* (TAS; Tellegen & Atkinson, 1974), which consists of 34 dichotomous forced choice items, is the most widely used measure of absorption. Tellegen (1982) reported a reliability of .88 and a 30 day test-retest reliability of r = .91. A factor analysis on item level (Tellegen, 1992) resolved into a 6-factor oblique rotated solution (i.e., responsiveness to engaging stimuli, synesthesia, enhanced cognition, oblivious/dissociative involvement, vivid reminiscence, and enhanced awareness). However, the six facets proved to be highly inter-correlated which speaks for the use of the total score instead of the facets.

Rhodes, David, and Combs (1988) found a positive correlation between absorption and the capacity to enjoy classical music. The ability to internally integrate a variety of simultaneous experiences might explain this result: the enjoyment of any music requires the integration of auditory experience with internal stimuli, such as emotion and imagery, but classical music with its inherent complexity is more challenging with respect to this demand than pop music. The same rationale was applied to visual art (Combs, Black, O'Donnell, Pope, Buckner, Ray, & Vandermeer, 1998); the authors found a strong positive correlation between absorption and the preference for abstract art, but not for representational one.

## The sensitivity to beauty and goodness in positive psychology

During the first half of the 20th century, psychology had three distinct missions: curing mental illness, making the lives of all people more productive and fulfilling, and identifying

and nurturing high talent (Seligman & Csikszentmihalyi, 2000). After World War II, the field of psychological research narrowed. The focus was now almost exclusively on the assessment and treatment of psychological disorders and on the negative effects of environmental stressors, no longer on the normal functioning of human beings, their potentials, strengths, and positive experiences, that is on conditions and psychological aspects which lead to satisfaction and happiness (Gable & Haidt, 2005; Seligman, 2000; Seligman & Csikszentmihalyi, 2000).

**Balancing the positive and negative**

Realizing this imbalance, Seligman and Csikszentmihalyi (2000) edited a special issue of the "American Psychologist" devoted entirely to positive psychology and in which they emphasized the above-mentioned imbalance, holding that psychologists had little knowledge of "what makes life worth living" (p. 5) and of "how normal people flourish under benign conditions" (p. 5).

Positive psychology does not claim that the positive sides of life were never studied before; it does not imply that the rest of psychology is negative; it is neither the "denial of the distressing, unpleasant, or negative aspects of life, nor […] an effort to see them through rose-colored glasses" (Gable & Haidt, 2005, p. 105). Positive psychology means to balance the positive and the negative and to study the full range of what makes human life, with special focus on "the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions" (Gable & Haidt, 2005, p. 104).

**The VIA-classification**

Humanistic psychology assumed human beings to have an innate need to make themselves and the world better and regarded personal growth, fulfillment, and satisfaction in life as a basic human motive; it is therefore considered as one of the precursors of positive psychology. However, there is one major difference between the humanistic psychology of

the 1960s and 70s and positive psychology: whereas the former was skeptical about the scientific method, the latter posited that "both strength and weakness" (Peterson & Seligman, 2004, p. 4) could be empirically studied. Consequently, the development of a vocabulary of positive traits, of a classification of good character, similarly to the DSM classification of pathologies, was one of the first aims of the newly-born positive psychology movement.

The classification-project was started in February 1999 with an initial brainstorming. The resulting list of possible components of a good life[3] was presented, discussed, and further refined at several positive psychology conferences. Literature related to the „good character" from psychiatry, youth development, philosophy, and psychology were reviewed, inventories of virtues and strengths of historic as well as contemporary authors and thinkers collected, statements of the Boy Scouts of America und Girl Guides of Canada consulted, the goals of character education programs examined, virtue-relevant messages on greeting cards, stickers, Saturday Evening Post covers, personal advertisements, graffiti, pokemon cards identified. In a next step, the strength candidates which had thus been identified had to meet a list of ten (later twelve) selection criteria (see Table 1) to definitively enter the classification. Finally, 24 strengths were retained and categorized under six core moral virtues that consistently and consensually emerge across cultures, religions, and centuries, namely, wisdom, courage, humanity, justice, temperance, and transcendence (see Table 2). This classification was done on theoretical, not empirical, grounds and therefore expected to "change in the years to come, as theory and research concerning character strengths proceed" (Peterson and Seligman, 2004, p. 31).

Peterson and Seligman (2004) argued that virtues were universal, perhaps grounded in biology through an evolutionary process that selected these specific aspects of excellence because they were necessary for the survival of the species, and hypothesized that virtues had

[3] These components were labeled *mansions*, *wellsprings*, and later simply *strengths* (Seligman & Peterson, 2003, p. 307).

Table 1. *Criteria for a character strength to be included in the VIA classification (Peterson & Seligman, 2004, pp. 16-28; Park, Peterson, & Seligman, 2004, p. 605).*

| |
|---|
| 1. Ubiquity – the strength is widely recognized across cultures. |
| 2. Fulfilling – the strength contributes to individual fulfillment, satisfaction, and happiness broadly construed. |
| 3. Morally valued – the strength is valued in its own right and not for tangible outcomes it may produce. |
| 4. Does not diminish others – the strength elevates others who witness it, producing admiration, not jealousy. |
| 5. Nonfelicitous opposite – the strength has obvious antonyms that are "negative." |
| 6. Traitlike – the strength is an individual difference with demonstrable generality and stability. |
| 7. Measurable – the strength has been successfully measured by researchers as an individual difference. |
| 8. Distinctiveness – the strength is *not* redundant (conceptually or empirically) with other character strengths. |
| 9. Paragons – the strength is strikingly embodied in some individuals. |
| 10. Prodigies – the strength is precociously shown by some children or youth. |
| 11. Selective absence – the strength is missing altogether in some individuals. |
| 12. Institutions – the strength is the deliberate target of societal practices and rituals that try to cultivate it. |

*Note*. Criteria 1 and 7 were added by Park, Peterson, and Seligman (2004) to Peterson and Seligman's (2004) initial list of 10 criteria.

all to be present in an individual to be described as having a good character. Character strengths, in turn, were conceived as stable and general individual differences and delineated as the psychological ingredients, processes, or mechanisms that define virtues, in other words as "distinguishable routes to displaying one or another of the virtues" (Peterson & Seligman, 2004, p. 13). Although the 24 character strengths are defined as being universally recognized and valued, nobody is expected to manifest them all. It is rather assumed that someone has a good character if he or she displays one or two strengths within each of the virtue groups and that every individual has a distinct character strengths profile, that is a specific rank order of the strengths, from the most to the least central.

Several instruments assessing the 24 character strengths have been developed. The most frequently used and best studied instrument for adults is the Values in Action Inventory of Strengths (VIA-IS; Peterson, Park, & Seligman, 2005a)[4]. The VIA-IS consists of 240 items for the self-assessment of the 24 character strengths (10 items per strength) and uses a 5-point rating format (from *very much like me* to *very much unlike me*). Based on the data of

[4] Other instruments are the Values in Action Rising to Occasion Inventory –VIA-RTO; the Values in Action Inventory of Strengths for Youth – VIA-Youth; the Values in Action Structured Interview – VIA-SI; and the Brief Strengths Test – BST.

Table 2. *Classification of the 6 core virtues and 24 character strengths (Peterson & Seligman, 2004, pp. 29-30).*

| |
|---|
| Virtue I. Wisdom and knowledge: cognitive strengths that entail the acquisition and use of knowledge. |
| (1) creativity: thinking of novel and productive ways to do things |
| (2) curiosity: taking an interest in all of ongoing experience |
| (3) open-mindedness: thinking things through and examining them from all sides |
| (4) love of learning: mastering new skills, topics, and bodies of knowledge |
| (5) perspective: being able to provide wise counsel to others |
| Virtue II. Courage: emotional strengths that involve the exercise of will to accomplish goals in the face of opposition, external or internal. |
| (6) bravery: not shrinking from threat, challenge, difficulty, or pain |
| (7) persistence: finishing what one starts |
| (8) honesty: speaking the truth and presenting oneself in a genuine way |
| (9) zest: approaching life with excitement and energy |
| Virtue III. Humanity: interpersonal strengths that involve "tending and befriending" others. |
| (10) love: valuing close relations with others |
| (11) kindness: doing favors and good deeds for others |
| (12) social intelligence: being aware of the motives and feelings of self and others |
| Virtue IV. Justice: civic strengths that underlie healthy community life. |
| (13) teamwork: working well as member of a group or team |
| (14) fairness: treating all people the same according to notions of fairness and justice |
| (15) leadership: organizing group activities and seeing that they happen |
| Virtue V. Temperance: strengths that protect against excess. |
| (16) forgiveness: forgiving those who have done wrong |
| (17) modesty: letting one's accomplishments speak for themselves |
| (18) prudence: being careful about one's choices; not saying or doing things that might later be regretted |
| (19) self-regulation: regulating what one feels and does |
| Virtue VI. Transcendence: strengths that forge connections to the larger universe and provide meaning. |
| (20) appreciation of beauty and excellence: noticing and appreciating beauty, excellence, and/or skilled performance in all domains of life |
| (21) gratitude: being aware of and thankful for the good things that happen |
| (22) hope: expecting the best and working to achieve it |
| (23) humor: liking to laugh and joke; bringing smiles to other people |
| (24) religiousness: having coherent beliefs about the higher purpose |

over 150'000 adults, Peterson and Seligman (2004) reported satisfactory alphas of all scales (> .70) and substantial test-retest correlations for all scales over a 4-month period (> .70). Correlations with demographics were modest but sensible; for example, women scored higher on the strengths of humanity than men, younger adults higher on humor than older ones, and married participants higher on forgiveness than divorced ones. Self- and other-nominations of

the strengths correlated with the corresponding scale scores. The VIA-IS was adapted into German by Ruch, Proyer, Harzer, Park, Peterson, and Seligman (2010). The authors reported internal consistencies ranging from .71 (honesty) to .90 (spirituality), with a median of .77. In their sample, retest reliabilities were comparable to the internal consistencies. Relationships of the German VIA-IS with demographics were modest but meaningful and similar to the ones found for the original VIA-IS.

Peterson and Seligman (2004) conducted an exploratory Varimax rotated factor analysis of scale scores and came to a 5-factor solution resembling, but not corresponding, to their a-priori classification. The resulting five factors were labeled *emotional strengths* (e.g., zest, hope, humor, love), *interpersonal strengths* (e.g., leadership, kindness, fairness), *strengths of restraint* (e.g., prudence, perseverance, self-regulation), *intellectual strengths* (e.g., love of learning, creativity, judgment), and *theological strengths* (e.g., religiousness, gratitude, and appreciation of beauty). This 5-factor solution could be reproduced for the German (Ruch et al., 2010) and the Hebrew VIA-IS (Littman-Ovadia & Lavy, 2012).

Two years later, Peterson (2006) discussed a factor analysis based on ipsative data. Two bipolar factors emerged, with the strengths being located in a full circumplex. The first factor was labeled *strengths of the heart* (e.g., religiousness, humor) *vs. mind* (e.g., self-regulation, perseverance), the second factor *strengths focusing on the self* (e.g., creativity, curiosity) *vs. on others* (e.g., teamwork, leadership). This 2-factor solution could later be reproduced for the German VIA-IS (Ruch et al., 2010) but not for the Hebrew version (Littman-Ovadia & Lavy, 2012).

**Two models of the sensitivity to beauty and goodness**

Peterson and Seligman (2004) introduced *appreciation of beauty and excellence* (or simply *appreciation*) into their classification of good character. *Appreciation* denotes the ability to "find, recognize, and take pleasure in the existence of goodness in the physical and

social worlds" (Haidt & Keltner, 2004, p. 537). Beauty is assumed to be experienced as a response to goodness in the physical world and excellence as a response to goodness in the social world. Haidt and Keltner (2004) suggest that "there are three principal types of goodness for which it is beneficial to be responsive" (p. 538), physical beauty (visual and auditory), skill or talent (virtuosity or superhuman ability), and virtue or moral goodness (kindness, compassion, forgiveness). These three kinds of appreciation are grouped together for the time being, but as the authors point out, empirical research will be needed" to determine if these sensitivities do in fact cluster together in individuals" (Haidt & Keltner, 2004, p. 538).

A core idea is that *appreciation* does not dependent on any formal cultural and artistic education but is accessible to anyone. As there are many types of beauty and excellence, a "one-size-fits-all" approach to what is regarded as beautiful and excellent should be avoided (Peterson & Seligman, 2004, p. 523). Each culture has its standards of beauty, but beauty and excellence may exist beyond conventions. The defining feature of *appreciation* is the emotional responsiveness, not a specific knowledge, vocabulary, or education.

In the VIA classification, *appreciation* is allocated to the virtue of transcendence together with gratitude, hope, humor, and spirituality. On first sight, these strengths seem to be rather diverse. However, they have in common that they all enable individuals to connect with a larger universe and thus to give a (deeper) sense to their lives. Peterson and Seligman (2004) conceived character as social in nature; therefore most character strengths go beyond the individual, but the transcendence strengths reach even farther, beyond fellow human beings, always with the following basic idea: "belief in and commitment to the transcendent (nonmaterial) aspects of life – whether they be called universal, ideal, sacred, or divine" (p. 519). In the five-factor solution reported by Peterson and Seligman (2004), *appreciation of*

*beauty and excellence* belongs to the group of *theological strengths,* together with religiousness, and gratitude (see also Littman-Ovadia & Lavy, 2012; Ruch et al., 2010).

An alternative model of the sensitivity to beauty and goodness was proposed by Diessner et al. (2008) and labeled *engagement with beauty*. In this model, the difference between goodness and beauty, especially the difference between moral goodness and moral beauty, is crucial and lies in the emotional involvement of the observer. According to Diessner et al. (2008), an act of moral goodness may be cognitively experienced as such, even without emotional involvement; it becomes an act of moral beauty if the observer feels moved and elevated. The act is the same, but the subjective, emotional reaction is different. This distinction between goodness and beauty may also be applied to human made objects or to nature. The *engagement with beauty model* is three-dimensional and distinguishes between natural, artistic, and moral beauty.

Figure 1 shows (a) the *appreciation of beauty and excellence* model (Haidt & Keltner, 2004) and (b) the *engagement with beauty* model (Diessner et al., 2008).

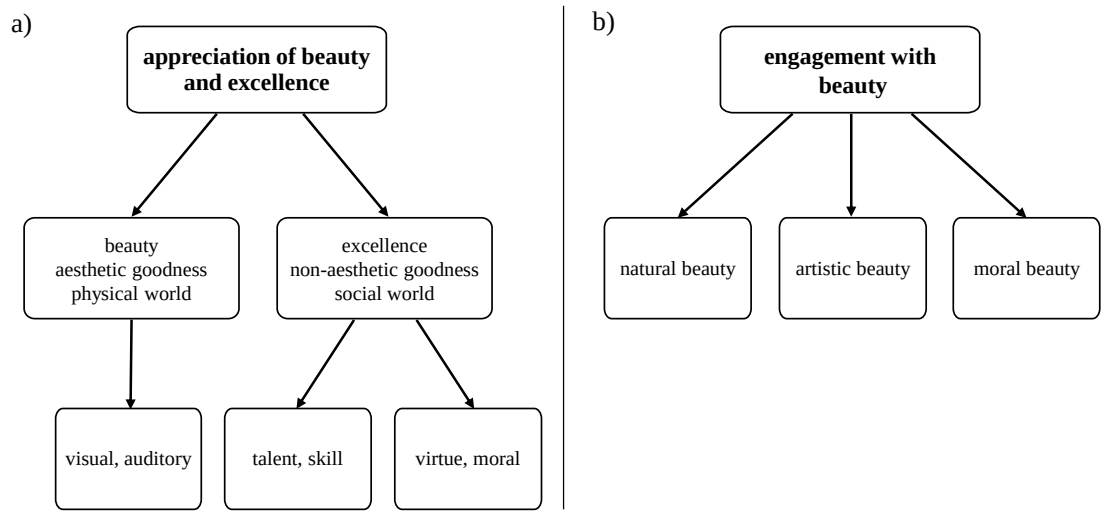


Figure 1. Structural Models: a) Appreciation of Beauty and Excellence (Haidt & Keltner, 2004), and b) Engagement with Beauty (Diessner et al., 2008).

As can be seen, the two models are overlapping but not identical. Both hypothesize a second-order factor of general sensitivity to beauty and goodness and both are three-dimensional. They share a dimension of artistic beauty and a dimension of moral beauty or goodness; additionally, *appreciation of beauty and excellence* posits a distinct skills or talent dimension, whereas *engagement with beauty* encompasses natural beauty as a third, separate dimension.

## Research on the sensitivity to beauty and goodness

In the following section, existing self-report instruments that measure the sensitivity to beauty and goodness will be presented together with first empirical results on correlates and outcomes of the construct.

### Measurement instruments

Up to now, three self-report instruments assessing the sensitivity to beauty and goodness do exist: the *Aesthetic facet* of the *Openness to Experience* scale of the *NEO Personality Inventory-Revised* (NEO-PI-R; Costa & MacCrae, 1992), the *Appreciation of Beauty and Excellence* (ABE) subscale of the *Values In Action Inventory of Strengths* (VIA-IS; Peterson, Park, & Seligman, 2005a), and the *Engagement with Beauty Scale* (EBS; Diessner et al., 2008). Although these three instruments all intend to measure the sensitivity to beauty, they pertain to different theoretical backgrounds and therefore focus on different aspects of the construct.

Developed as a measure of the Five Factor Model (FFM), the *NEO Personality Inventory-Revised* (NEO-PI-R; Costa & McCrae, 1992; McCrae, 1996) comprises five scales assessing Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness, each of which, in turn, is subdivided into six facets. The 8-item *Aesthetic facet*, which is part of Openness to Experience and the main point of interest within the scope of this research, refers to the predilection and craving for poetry, painting, music, and other arts and to the effect these different art forms have on the respondent (fascination, deep

absorption, chills, or wave of excitement). One item concerns patterns in nature but none addresses non-aesthetic types of goodness, such as human excellence or virtue. For the five main scales of the NEO-PI-R, Costa and McCrae (1992) reported internal consistency coefficients from .86 to .95 (Openness to Experience = .87) and multiyear test–retest reliability coefficients in the range of .51 to .83; for the facets, the alphas lied between .56 and .90 (Aesthetic facet = .76).

The 10-item *Appreciation of Beauty and Excellence* (ABE) scale of the VIA-IS is concerned with both beauty and excellence (i.e., aesthetic and non-aesthetic goodness). Surprisingly, it comprises no items relating to skills or talent, although this is one of the three sensitivities posited in Haidt and Keltner's (2004) model of *appreciation*. Furthermore, nature (though assumed to be part of aesthetic goodness) is not explicitly addressed, but rather the general environment or the surroundings (e.g., "world of beauty", "beauty of the environment"). Peterson, Ruch, Beermann, Park, and Seligman (2007) reported an alpha of .85 for the ABE subscale, Ruch et al., (2010) an alpha of .73 (German version).

The *Engagement with Beauty Scale* (EBS; Diessner et al., 2008) is the first standalone instrument concerned with the sensitivity to beauty and goodness. According to its authors, the starting-point for its development was Haidt and Keltner's (2004) statement that „there is at present no self-report measure of individual differences in appreciation of beauty and excellence" (p. 546). The EBS consists of 14 items for the self-assessment of Engagement with Natural Beauty (4 items), Engagement with Artistic Beauty (4 items), and Engagement with Moral Beauty (6 items). Each subscale taps four different ways of processing beauty: perception and cognition, physiological changes, conscientious emotions, and transcendence or spirituality. The moral beauty subscale comprises two additional questions which touch motivational outcomes (i.e., the desire to become a better person or to do the good). The EBS offers a total score and scores for each of the three subscales. Diessner et al. (2008) reported

an internal consistency of .90 for the total score and alphas ranging from .80 to .87 for the subscales. A factor analysis on item-level resolved into a clear 3-factor solution. The German version by Dachs and Diessner (2009) was tested with a sample of N = 69 participants: reliabilities ranged from .94 (EBS total score) to .85 (Natural Beauty and Artistic Beauty subscales) and the factor structure of the original could be reproduced.

If the content and the structure of these three measurement instruments are compared, it appears that the ABE and EBS both exceed the scope of the *Aesthetic facet* because they include the sensitivity to non-aesthetic forms of goodness; however, neither the ABE nor the EBS is concerned with skills or talents. Interestingly, none of the three questionnaires addresses bodily beauty (the EBS even explicitly excludes this type of beauty: "Statements 1-4 below refer to experiences with nature and the physical world, including […] but NOT the human body", Diessner et al., 2008, p. 329), possibly because too many personal, biographical, cultural, or even evolutionary (Etcoff, 1994) factors may have an impact on the experiencing of this particular type of physical (i.e., aesthetic) beauty. All questionnaires address the emotions and bodily changes elicited by beauty or goodness, but only the EBS systematically investigates these feelings and reactions. And finally, whereas the ABE subscale and the *Aesthetic facet* of the NEO-PI-R contain no subscales, the EBS is clearly structured into three distinct dimensions.

Diessner et al. (2008) correlated the ABE subscale of the VIA-IS with their newly created EBS in a sample of N = 122 undergraduate students. They found a correlation of $r$ = .80 with the EBS total score, of .76 with the EBS Natural Beauty subscale, of .66 with the EBS Artistic Beauty subscale, and of .55 with the EBS Moral Beauty subscale. These correlations indicated that the EBS and ABE were overlapping but not identical, which reflects not only the fact that the ABE mainly contains items relating to beauty in art or in the surroundings, whereas the EBS equally addresses artistic, natural, and moral beauty, but also

the fact that the EBS is much more concerned with emotions and bodily reactions than the ABE. The relation between the VIA-IS ABE subscale and Openness to Experience was examined by a few studies (Jónsdóttir, 2004; Littman & Ovadia, 2012; Loske, 2006; Otake, Shimai, Ikemi, Utsuki, Peterson, & Seligman, 2005; West, 2006); the authors of these studies reported correlations ranging between .24 and .82. The link between the EBS and Openness to Experience as well as the link of ABE and EBS with the *Aesthetic facet* still wait for testing.

The ABE, EBS, and the *Aesthetic facet* of the NEO-PI-R are all self-report questionnaires and therefore share not only method variance but also the problems of an answering-style possibly lead by social-desirability and by the views participants have of themselves. A number of tests and experimental indicators relating to aesthetics do exist, but they are all concerned with specific visual or auditory aesthetic preferences, not with an overall sensitivity to beauty and goodness. Additionally, many of them fared poorly when their psychometric quality was checked. Only a few instruments are well established, such as the *Visual Aesthetic Sensitivity Test* (VAST; Eysenck, 1988) in which participants are given dozens of pairs of similar figures and asked to select the one that is better or more harmonious. Or the *Barron-Welsh Art Scale* (BWAS; Welsh & Barron, 1949), an 86-item test which asks participants to indicate whether they "like" or "dislike" black and white figures (e.g., simple abstract drawings of cylinders, irregular triangles, or blocks). Or, in the field of music, the *Musical Preferences Scale* (MPS; Litle & Zuckerman, 1986), which consists of 75 questions about musical preference (60 items covering established categories of music), musical activities, and demographic data.

**Related constructs**

In their overview of literature and research on appreciation, Haidt and Keltner (2004) wrote that, due to the "lack of a scale assessing individual differences in appreciation" (p.

548), there was no direct empirical evidence for correlations with other constructs. However, based on theoretical assumptions, they listed possible correlates: the Big Five factor Openness to Experience, in particular the Openness to Aesthetics facet, gratitude which involves being emotionally moved by the moral excellence of another person's generosity (McCollough, Emmons, & Tsang, 2002), spiritual transcendence defined as "the capacity of individuals to stand outside their immediate sense of time and place to view life from a larger, more objective perspective" (Piedmont, 1999, p. 988), self-transcendence which refers to the search for something elevated, lying beyond the individual's existence (Cloninger, Przybeck, Svrakic, & Wetzel, 1994), and finally materialism, the only construct for which a negative correlation was predicted. In the meantime, the link between appreciation and Openness to Experience was examined by several studies (Jónsdóttir, 2004; Littman & Ovadia, 2012; Otake et al., 2005; West, 2006) and could be confirmed. Diessner et al. (2008) correlated spiritual transcendence, gratitude, and materialism with engagement with beauty and corroborated the corresponding hypotheses of Haidt and Keltner (2004).

More recently, Munro, Chilimanzi, and O'Neill (2012) studied the correlations between the *Values in Action Inventory of Strengths* (VIA-IS; Peterson et al., 2005a) and the *Myers-Briggs Type Indicator* (MBTI; Briggs & Myers, 1976) which aims at identifying basic preferences on each of the four dichotomies specified or implicit in Jung's theory, namely, Extraversion vs. Introversion, Sensing vs. Intuition, Thinking vs. Feeling, and Judging vs. Perceiving. The authors could show that appreciation of beauty and excellence was significantly higher in persons with preference for Intuition (instead of Sensing).

Given the numerous distinctions philosophers and theorists draw between the beautiful and the sublime, scales and measurement instruments closely concerned with the feeling of the divine or of the sacred, with mysticism, transcendence, spirituality, or religiousness[5] may

[5] Pargament (2007) defined spirituality as "the journey people take to discover and realize their essential selves and higher order aspirations" (p. 58), or as a "search for the sacred" (Pargament, 2007, p. 52), whereas religion (or religiousness) was

be of interest with respect to the further convergent and divergent validation of appreciation or of engagement with beauty. For example, the *Daily Spiritual Experiences Scale* (DSES; Underwood, 2006; Underwood & Teresi, 2002), a measure of a person's everyday connection to the transcendent and of the feelings that result from that connection; or Hood's (1975) *Mysticism Scale* (M-scale) which assesses the propensity for having transpersonal and spiritual experiences; the *Religious Involvement Scale* (RIS; Piedmont, 2004), a 4-item questionnaire designed to measure the individual's degree of religious involvement; the *Spiritual Transcendence Index* (STI; Seidlitz, Abernethy, Duberstein, Evinger, Chang, & Lewis (2002) which concerns the respondent's perceived experience of the sacred; or the *Religious-Spirituality Implicit Association Test* (RS-IAT; LaBouff, Rowatt, Johnson, Thedford, & Tsang, 2010), a test that captures the strength of automatic associations between stimuli that represent two distinct target groups (i.e., self / other) and evaluative attributes or traits (i.e., religious / not religious).

**Life outcomes**

People's consistent reports about experiences of awe and elevation which had profoundly influenced their lives, motivating them to self-improvement, personal change, altruistic intentions and actions, and devotion to others and the larger community (e.g., Haidt, 2003; Keltner and Haidt, 2003) lead to the expectation that being highly appreciative would correlate with a variety of positive life outcomes, such as life satisfaction, meaning in life, well-being, enhanced social relationships, or better recovery from illness. Of these possible outcomes, satisfaction with life received the most research interest. Surprisingly, the correlation between satisfaction with life (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) and ABE proved consistently to be one of the lowest of all 24 character strengths. Park et al. (2004) found correlations ranging from .02 to .12 between SWLS and ABE (.48 to .59 for the

described as "the search for significance that occurs within the context of established institutions that are designed to facilitate spirituality" (Pargament, Mahoney, Exline, Jones, & Shafranske, 2013, p. 15).

correlations with hope and .47 to .53 for the correlations with zest) in three samples of adult volunteers. Ruch et al. (2010) reported a correlation of .11 (.60 with hope, .46 with zest) within the scope of their validation of the German version of the VIA-IS. Proyer, Gander, Wyss, and Ruch (2011) studied a sample only composed of women and used the *Temporal Satisfaction with Life Scale* (TSWLS; Pavot, Diener, & Suh, 1998), a measure distinguishing between a person's past, present, and future life satisfaction. Whereas the correlation of ABE with TSWLS was only -.01 for the past, and .06 for the present, it raised to a significant .17 for the future. However, the fact that all strengths were most strongly related with future life satisfaction relativizes this result, and when the relations to rank-ordered strengths were tested, appreciation of beauty and excellence yielded the lowest relations to the three temporal domains of satisfaction, together with modesty, prudence, open-mindedness, and honesty. Finally, Diessner et al. (2008) found a significant correlation of the SWLS only with the EBS Natural subscale, but not for the EBS Artistic and EBS Moral subscales.

If we follow philosophers, beauty gives meaning to life. Therefore, the correlations of ABE with the *Orientations to Happiness questionnaire* (OTH; Peterson, Park, & Seligman, 2005b) which distinguishes between life of pleasure, life of engagement, and life of meaning are of interest. Peterson et al. (2007) examined the correlations between all VIA-IS scales, the SWLS, and the OTH in two different samples, US and Swiss. Again, they found low correlations of ABE and SWLS (.12 and .10, respectively), but they reported correlations of .27 (US) and .21 (Swiss) with life of pleasure, of .26 and .24 with life of engagement, and of .36, respectively .27 with life of meaning. In the Swiss sample, only gratitude (.29), religiousness (.54), social intelligence (.37), leadership (.30), and creativity (.35) showed higher relations than ABE with life of meaning. It would seem that for this particular sample of German speaking inhabitants of Switzerland, being sensitive to beauty and goodness notably contributes to meaning of life.

Huta and Hawley (2010) tried to determine the relative contributions of strengths and vulnerabilities to well-being. Several pre-treatment strengths (i.e., hope, spirituality, and appreciation of beauty and excellence) predicted post-treatment recovery from depression, whereas cognitive vulnerabilities did not. However, results also showed that strengths and vulnerabilities did sometimes interact, with strengths weakening the relationship between vulnerabilities and well-being. Moore (2011) investigated differences in character strengths between individuals with and without histories of childhood abuse and found those reporting a history of abuse to have lower scores on forgiveness, appreciation, and gratitude. Laracy (2012) examined the role of experiencing beauty in mental health, discussed possible implications and applications for psychotherapy, and provided a beauty-based perspective on structuring the office space, assessing clients, and planning interventions.

**Link with musical practice**

In line with the idea that character strengths should lead to observable behavior in specific contexts (i.e., situational themes), persons highly appreciative would be expected to engage in activities relating to beauty in the physical world or to non-aesthetic goodness; vice-versa, individuals working in fields where one or more types of beauty or goodness are relevant would be expected to display higher levels of appreciation of beauty and excellence than the general population. Empirical data support this idea within the art context. Riddle and Michel-Riddle (2007) studied a small sample of male art therapists and art therapy students whose two highest ranked character strengths were curiosity and appreciation. Diessner et al. (2008) found that art and music students scored significantly higher on engagement with artistic beauty than education and psychology majors. These findings raise the question whether other empirical data in line with the idea of musicians being particularly sensitive to beauty and goodness do exist.

Research on personalities of musicians started in the second half of the 1970s with studies on the stereotypes that exist among musicians about personality differences between the different instrumental groups in an orchestra. This topic came up more or less by chance: Davies (1976) explained that during psychological experiments into how people remembered tonal sequences, a control group with high levels of skill in dealing with this type of task was required. Some musicians of the nearby orchestra were recruited; in the course of discussions, the researchers were struck by the musicians' "half-serious, bantering" comments about the different sections of the orchestra (p. 46). Thereupon, Davies (1976) more systematically interviewed 20 professional orchestra musicians and found that string players thought the brass players to be extraverted, loudmouthed, mannerless, and uncultivated persons who always drunk too much and practiced neither conscientiously, nor enough. In turn, the brass players described the strings as a flock of sheep, oversensitive, touchy, serious, and apprehensive of injuring their fingers. Subsequent studies by Lipton (1987) and by Buillione and Lipton (1983) confirmed these stereotypes.

Another line of research started with Martin's (1976) but principally Kemp's (1981a, 1981b, 1981c) researches on personality differences between different groups of professional musicians (i.e., strings, woodwind, brass, keys, singers, and composers), using standardized personality questionnaires. Within the scope of these researches, Cattell's *16 Personality Factor Questionnaire* (16PF; Cattell, Eber, & Tatsuoka, 1970) was largely used (Bell & Cresswell, 1984; Kemp 1981a, 1981b, 1981c, 1996; Martin, 1976), as well as the *Eysenck Personality Inventory* (EPI; Eysenck & Eysenck, 1964) or the *Eysenck Personality Questionnaire* (EPQ; Eysenck and Eysenck, 1975), for example in the study by Cribb and Gregory (1999). The Big Five were examined only in one study (Langendörfer, 2008), using the NEO-FFI (Borkenau & Ostendorf, 1993). The findings of these studies, which all concerned classical musicians, yielded little, if any, empirical support for believing that there

are personality characteristics unique to specific instrumental groups. Musicians as a group seemed to be more autonomous, introverted, sensitive, and intelligent than non-musicians and to display higher levels of anxiety and neuroticism.

Few researches concerned jazz, rock, or pop musicians. Wills (1984) administered the EPQ to 70 professional musicians working in the popular field (jazz, rock, pop, and dance music) and earning their money with both live engagements and recording sessions. Dyce and O'Connor (1994) examined the personality characteristics of 171 rock and country musicians using the *Interpersonal Adjective Scale – Big Five* (IASR-B5; Trapnell & Wiggins, 1990). Finally, Gillespie and Myors (2000) investigated the personalities of 100 rock and popular musicians who completed the *NEO Personality Inventory Revised* (NEO-PI-R; Costa & McCrae, 1992).

Neither the Cattell nor the Eysenck personality questionnaires which were used in most of the studies address the sensitivity to beauty and goodness. Only three studies assessed the Big Five and therefore included Openness to Experience, a dimension which is of particular interest within the scope of this research. Langendörfer's (2008) sample of N = 122 members of professional orchestras scored higher than the German norm population on Openness to Experience (2.66 and 2.43, respectively). Dyce and O'Connor (1994) found a significant difference between the Openness to Experience scores of 171 rock and country musicians, and the corresponding population norms. However, as the IASR-B5 Openness measure corresponds only to one facet of Openness, namely Fantasy, this result should be interpreted with due care. Finally, Gillespie and Myors (2000) established the NEO-PI-R profile of 100 rock musicians and reported mean scores significantly above the norm on all Openness facets, especially Fantasy and Openness to Aesthetics. These findings, though exploratory, suggest that investigating musicians' sensitivity to beauty and goodness might yield interesting findings.

## Awe as a specific emotional response to beauty and goodness

Haidt and Keltner (2004) thought of appreciation as "a specific *emotional* responsiveness" (p. 539) and hypothesized each of the three kinds of goodness included in their model to elicit a specific emotion in the observer: beauty to elicit awe, skills or talent to raise admiration, virtue or moral goodness to arouse elevation. Awe, elevation, and admiration were conceived as belonging to the family of *self-transcendent* emotions and awe assumed to be the central member of this family. *Self-transcendent emotions* are elicited by the virtues and excellences of others and have in common that they "transcend self-interest" (Haidt & Morris, 2009, p. 287), an idea conforming to the postulate of many modern approaches to aesthetics (e.g., Kant) that an aesthetic attitude necessarily is uninterested[6].

### Awe in psychology

Until recently, psychology had little to say about awe; other emotions received much more research interest. Two major psychologists dealt with awe, McDougall within the field of social psychology and Maslow within the scope of humanistic psychology. McDougall (1921) viewed positive emotions such as admiration, awe, and gratitude as the critical building blocks of a well-functioning society: "aesthetic appreciation of the beauty of fine character and conduct may play a large part in the genesis of the ideal of conduct and of the sentiment of love for this ideal" (p. 195). He defined awe as "of many shades, ranging from that in which admiration is but slightly tinged with fear to that in which fear is but slightly tinged with admiration" (p. 113), admiration as a fusion of wonder and negative self-feeling, and reverence as awe blended with tender emotion. Maslow (1968) noted that peak experiences could initiate extreme moments of love and joy and that the highest peaks

[6] Ortony, Clore and Collins' (1988) family of the *appreciation emotions*, which comprises admiration and awe together with esteem and respect is very similar, whereas the family of the *other-praising emotions* (Haidt, 2003; Algoe & Haidt, 2009), which comprises gratitude, elevation and admiration is slightly different: gratitude is directed towards the self and thus not disinterested.

included "the feeling of great ecstasy and wonder and awe, the loss of placing in time and space" (p. 164).

A few more recent emotion theorists offered general definitions of awe. Izard (1977) included awe in his *Differential Emotions Scale* (DES) and suggested it to be a variant of interest. Lazarus (1991) described awe as an ambiguous state which can often be a negative experience, blending fright and amazement. Ekman (1994) mentioned awe in his list of 17 potentially basic emotions (16 “pleasurable emotions” in 2003), but gave no details about elicitors, meanings, or expressive behaviors. Frijda (1987) treated wonder rather than awe and assumed it to be as a passive, receptive mode of attention in the presence of something unexpected.

**Awe in positive psychology**

Within the scope of positive psychology, awe received more attention. Haidt and Keltner (2003) proposed a prototype-based approach to explicate how varieties of this emotion are felt towards powerful individuals, nature, and art, and how awe differs from admiration, elevation, and epihanic experience. Two features central to awe were identified, namely, (a) vastness of stimulus and (b) required accommodation. Vastness means that the stimulus is experienced as being much larger than the self, or the self’s ordinary level of experience, or frame of reference. Vastness is often a matter of simple physical size but can also involve social size, such as fame, authority, or prestige. The term accommodation refers to the corresponding Piagetian process: existing schemes are continuously modified and adjusted to current realities, as opposed to assimilation which means that a stimulus or an experience can be integrated into an existing mental structure (Piaget & Inhelder, 1976).

According to Keltner and Haidt (2003), prototypical awe necessarily involves both perceived vastness and need for accommodation. Emotional responses which lack one of these features do not belong to the awe family but form the family of the *awe-related states*

(Keltner & Haidt, 2003, p. 304-305). It is interesting, at this point, to see how close this theoretical approach comes to Burke's (1757/1990) description of stimuli that produce the sublime experience: such stimuli were assumed to have two properties, power, in particular the power to destroy (i.e., vastness), and obscurity or uncertainty in form, origin and design (i.e., need for accommodation). Furthermore, Burke mentioned several states that are close relatives of the sublime experience, namely, milder feelings of beauty, admiration, astonishment, reverence, and respect (i.e., awe-related states).

Additionally to vastness and accommodation, Keltner and Haidt (2003) identified five themes (e.g., threat, beauty, ability, virtue, and supernatural causality) which flavor or alter the emotional experience and account for variations in awe or awe-related states. 1) Threat and danger cause an experience of awe flavored with fear; 2) beauty can produce awe-related experiences that are tinged with aesthetic pleasure; 3) exceptional ability, skills, and talent color the experience with admiration; 4) virtue and strengths of character may trigger a state called elevation; 5) supernatural causality or a manifestation of God will flavor an experience with an element of the uncanny or spooky.

**Measuring the disposition to experience awe**

Two instruments measuring the disposition to experience awe do currently exist: a modified version of Izard's (1977) *Differential Emotions Scale* (mDES; Fredrickson, Tugade, Waugh, & Larkin, 2003), and the *Dispositional Positive Emotions Scales* (DPES; Shiota, Keltner, & John, 2006). The modified DES comprises 20 items to determine how often ten negative and ten positive emotions (i.e., joy, interest, amusement, awe, contentment, gratitude, hope, love, sexual desire, and pride) were experienced during the last 24 hours. Like the DES before it, the mDES uses a trio of emotion terms to capture each emotion (for awe: awe, wonder, amazement*).* Respondents are required to indicate "the *greatest amount* that you've experienced each of the following feelings" (on a scale from 0 = *not at all* to 4 =

*extremely*). Most often, the 10 positive and the 10 negative emotion items are aggregated separately to create independent positive and negative emotion scores, respectively. These two scales proved to yield high internal reliabilities, ranging from .82 to .94 (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008). The DPES, in turn, comprises 38 items to assess the general disposition to experience seven distinct positive emotions (i.e., joy, contentment, pride, love, compassion, amusement, and awe); it uses a 7-point rating format (from 1 = *strongly disagree* to 7 = *strongly agree*). The six items of the awe subscale concern the disposition to experience awe, to respond to beauty, to see pattern and design, and to feel interconnected with others. Shiota et al. (2006) reported subscale reliabilities ranging from .75 to .92 (.78 for awe).

Empirical researches on awe are not numerous. Shiota, Campos, and Keltner (2003) studied features of facial and upper-body displays of awe and described that displays of awe frequently included raised inner eyebrow, widened eyes, an open, slightly drop-jawed mouth, a slight forward jutting of the head, and visible inhalation. Smiling was only seldom part of the pose. Shiota, Keltner, and John (2006) used the newly developed DPES to investigate the relation between seven positive emotion dispositions and the Big Five. Dispositional awe proved to be correlated significantly with Extraversion (.34) and with Openness to Experience (.49), but not with Conscientiousness (.07), Agreeableness (-.02), or Neuroticism (-.05). Data suggested that individual differences in awe-proneness actually do exist. Within the scope of a research about elicitors, appraisals, and effect on self-concept of awe, Shiota, Keltner, and Mossman (2007) asked 60 undergraduate students to describe a particular, recent event in which they had felt awe. In 27% of the cases, participants reported about being in nature, in 20% about exposure to music, in 10% about another's accomplishment, in 20% about social situations (mainly major life transitions for other persons, such as a marriage or a death), and in 20% about personal accomplishment. These findings suggested the relatively

asocial nature of awe as compared to happiness which was elicited by social interactions in 66% of the cases. Asked about the emotions and thoughts associated with the awe-eliciting experience reported, participants mentioned awe, love, contentment, rapture, a sense of the smallness of the self, the feeling to be part of a greater whole, and some disengagement from awareness of the self (Shiota et al., 2007). Recent publications concerned the outcomes of awe, such as expanding the perception of time and enhancing well-being (Rudd, Aaker, & Vohs, 2012) or activating feelings of oneness with others in general and with friends in particular (Van Cappellen & Saroglou, 2011), the link with goose bumps (Schurtz, Blincoe, Smith, Powell, Combs, & Kim, 2012), and the role of awe in the therapeutic process (Weissblatt, 2011). Finally, a research by Bonner and Friedman (2011) attempted at clarifying the concept and the experience of awe by means of an interpretative phenomenological analysis of focus interviews.

## Open questions and aims of this research

A couple of open questions and potential fields for further investigation emerged from this overview of the literature and current scientific knowledge on positive psychology, philosophical and psychological approaches to aesthetics, existing models and measurement instruments of the sensitivity to beauty and goodness, as well as research on correlates and outcomes. These open questions will be shortly summarized and lead to the definition of specific research questions.

A close look at the existing **measures** of the sensitivity to beauty and goodness revealed that none of them addresses skills or talent. Furthermore, it became apparent that only self-report measures of the sensitivity to beauty and goodness do exist and that the development of a more objective measure (i.e., test or experimental indicator) would be a fruitful step into the direction of the further validation of the construct.

Research question 1: How are the relations between the existing two self-report measures addressing not only the sensitivity to art and aesthetics but also non-aesthetic types of goodness (i.e., ABE and EBS) with a more objective (i.e., stimulus-based instead of self-report) test that would include items relating to skills and talents?

*Medium to high positive correlations between the ABE and the EBS were expected (in line with the results of Diessner et al., 2008), as well as lower but still significant and theoretically meaningful correlations between these two self-rating measures and the newly created test (method variance).*

A second open question concerned the **structure** of the sensitivity to beauty and goodness. Both the *appreciation of beauty and excellence* model (Haidt and Keltner, 2004) and the *engagement with beauty* model (Diessner et al., 2008) hypothesize a general (i.e., second-order) factor of the sensitivity to beauty and goodness which comprises three distinct, but related dimensions: physical beauty, skills or talent, and virtue or moral goodness in the case of *appreciation*, natural, artistic, and moral beauty in the case of *engagement*. The similarities and partial overlap as well as the differences between the two models raised the question of how they relate to each other, whether the assumption of a second-order factor and of the three-dimensionality could empirically be confirmed, and if so, how many and which distinct, but related dimensions would emerge.

Research question 2: How is the factorial structure of the sensitivity to beauty and goodness?

*To answer this research question, it was planned to compute a structural equation modeling analysis which would include the two existing self-report measures (i.e., ABE and EBS) and the new stimulus-based test, in order to examine which of the different theoretically conceivable two-, three-, or four-dimensional models would fit the data best.*

Up to now, few **correlates** of the sensitivity to beauty and goodness were studied. The pool of possibly related constructs would need to be enlarged in order to more extensively map the sensitivity to beauty and goodness onto previously developed measures within a nomological net. Two personality characteristics which were examined in the context of research on aesthetic preferences might be of particular interest with respect to the sensitivity to beauty and goodness, namely, sensation seeking and absorption[7].

Research question 3: How is the convergent and discriminant validity of the sensitivity to beauty and goodness with regard to sensation seeking and absorption?

*Rawlings and al. (1998) wrote that it is the ES sensation seeking subscale, "that produces the strongest relationships with aesthetic variables" (p. 571). Furthermore, in different studies, only ES proved to be significantly correlated with both Openness to Experience and its Aesthetics facet (Aluja, Garcia, & Garcia, 2003; Garcia, Aluja, Garcia, & Cuevas, 2005). It was therefore hypothesized that only the sensation seeking ES subscale would be significantly related with ABE and the EBS total score as well as with the EBS Artistic subscale. As empirical results revealed a link between absorption and the capacity to appreciate music or visual art, a significant positive correlation of absorption with all measures of the sensitivity to artistic goodness was predicted and the question posed whether or not this link would also extend to non-artistic types of goodness.*

Although Haidt and Keltner (2004) assumed that a person high on appreciation "frequently feels awe and related emotions" (p. 537), the relation between the sensitivity to beauty and goodness as character strength and the **disposition to experience awe** were neither discussed in the literature, nor examined in detail empirically up to now.

[7] Haidt and Keltner (2004) wrote that "the history of aesthetics suggests that one of the keys to understanding appreciation is to understand that works of art and drama have the capacity to create a state of deep absorption, which is experienced as a kind of self-transcendent journey into another world" (p. 541).

Research question 4: How does the sensitivity to beauty and goodness relate to the disposition to experience awe and, more generally, to the disposition to experience distinct positive emotions?

*To examine this question, the DPES seemed to be the more appropriate instrument than the mDES, as the DPES assess the overall disposition to experience distinct positive emotions whereas the mDES measures their occurrence during the last 24 hours, thus being rather a state than a trait measure. Considering the substantial correlation Shiota et al. (2006) found between the disposition to experience awe and Openness to Experience, a numerically moderate to high positive correlation of the overall sensitivity to beauty and goodness with dispositional awe was predicted. It was furthermore hypothesized that the overall sensitivity to beauty and goodness would go along with the disposition to experience joy and the disposition to experience contentment, but not with dispositional humor. And finally, the sensitivity to moral goodness was expected to display a specific correlation with the disposition to experience love and the disposition to experience compassion.*

With respect to the **outcomes** of the sensitivity to beauty and goodness, mainly satisfaction with life and three orientations to happiness were considered in previous researches. This line of research could be extended to other areas, such as working context, leisure activities, health, and interpersonal relations. Persons highly appreciative would be expected to engage in activities relating to, or relying on, this specific character strength. Empirical data gave support to the idea that musicians would display a pronounced sensitivity to beauty and goodness and called for onward investigation of this promising field.

Research question 5: Do professional musicians as a group differ from non-musicians with regard to different measures of the sensitivity to beauty and goodness?

*It was predicted that the degree of involvement in musical practice (i.e., music as a profession, music as a leisure activity, no personal musical practice) would be correlated*

*positively with the sensitivity to artistic beauty. Additionally, it was assumed that musically active persons would also display a heightened sensitivity to non-artistic forms of beauty and goodness (i.e., nature, virtue, skills or talent).*

Previous studies on the personalities of professional musicians suggested that a specific "musical temperament" might exist. However, they also pointed at the fact that the personality characteristics of **subgroups of professional musicians** differed depending on their main instrument, their working context, or their main activity.

Research question 6: Do subgroups of professional musicians differ with regard to different measures of the sensitivity to beauty and goodness?

C*omparing the personality profiles of the members of different instrumental groups did not yield conclusive results in the past. It was therefore decided to follow the suggestions of Woody (1999) who argued that the possible interaction between the musician's personality and factors like "the venue or context in which the music is performed, the particular musical genre, the presence or absence of career success, and the culture" (p. 241) should be investigated and to focus on the comparison between musicians who mainly teach, play in an orchestra, or give concerts as soloist. The assumption behind this grouping was that the working conditions and requirements might well be related to differences in the overall sensitivity to beauty and goodness, or to the display of very specific sensitivity profiles.*

## Procedure

In this last section of the general introduction, two preliminary steps of the research will be described: first, the development of a new, more objective test (see above: research question 1, p. 35) and second, the conception of an online survey for the data collection.

### Development of a stimulus-based test

The main guidelines for the development of the new test were that this instrument would (a) be stimulus-based (instead of self-report) and (b) address not only physical and

moral beauty but also skills and talents. To fulfill the first of these two objectives, it was decided that respondents would be presented online with a series of stimuli (i.e., examples of beauty and goodness) and then requested to rate for each stimulus the extent to which they experienced beauty, excellence, awe, aesthetical pleasure, admiration, and elevation. The pool of stimuli would consist of pictures, music excerpts, texts to read, texts to listen to, and video clips. In order to satisfy the second objective, it was settled that the new test would comprise three distinct subscales corresponding to the three types of goodness included in *appreciation* model, namely, physical beauty, skills or talent, and virtue or moral goodness. To express the close match between the *appreciation* model and the structure of the new test, the latter was named *Appreciation of Beauty and Excellence Test* (ABET).

Physical beauty includes a wide range of areas such as art, nature, architecture, abstract visual or auditory stimuli, design objects, and the beauty of human bodies. Although the overall objective of the ABET was to present respondents with an as large variety of items as possible, it was decided to restrict the physical beauty subscale to artistic beauty because this thematic focus would allow for a fine-grained assessment of musicians' sensitivity to different forms of art.

The three scales of the ABET were labeled ABET Art, ABET Talent, and ABET Moral. ABET Art was differentiated into ABET Music, ABET Painting, and ABET Lyric. In the initial version of the test, each subscale encompassed 10 items. Thus, there were 30 items relating to aesthetic goodness (10 examples of music, painting, and lyric) and 20 examples relating to non-aesthetic goodness (10 examples of skills or talents, 10 examples of virtue or moral goodness). Figure 2 shows the initial structure of the ABET.

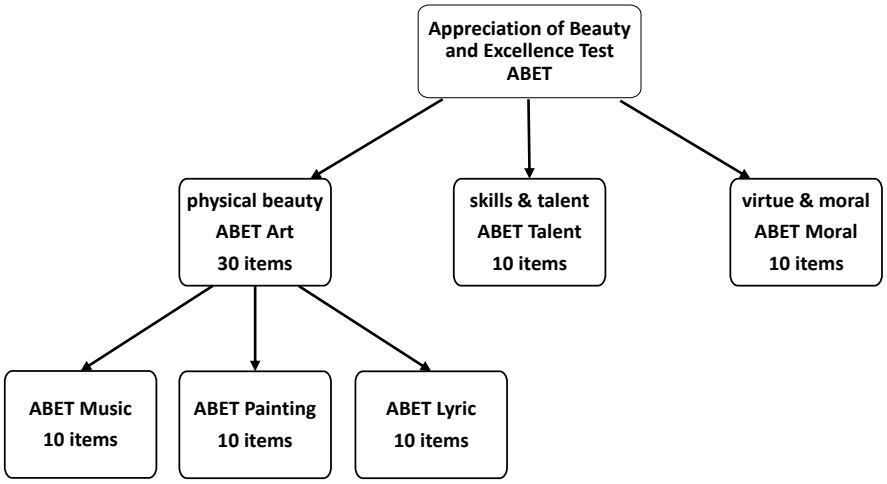


Figure 2. Structure of the ABET.

*Item selection*. The choice of the items for each of the subscales was done from the point of view of the greatest variety possible. For the three artistic subscales, the first step was the selection of a large choice of possible item-candidates which covered the whole range of styles and epochs. In a next step, criteria according to which these item-candidates could be classified were defined and ten "profiles" (i.e., combinations of these criteria) specified. Finally, one item corresponding to each of these "profiles" was drawn randomly. Music examples were selected following Litle and Zuckerman's (1986) categorization of music genres and classified according to instrumentation or vocal range, size of the ensemble, tempo, and mode. The length of the musical excerpts was between 25 seconds and 2 minutes 20; the cut-off was set after a coherent, standalone section. The initial selection of paintings relied on reference books on art history and was then classified according to technique, motives/contents, complexity, realism versus abstraction, and main colors. The paintings to be included in the definite selection were downloaded from a digital archive for teaching and research (www.prometheus-bildarchiv.de) to guarantee for the quality (color, resolution) of the reproductions. Lyric was chosen instead of short sections from novels because in a poem contents, language, and style can be experienced in a concise and closed form. Short poems were selected from anthologies and collections and then classified according to their content

or themes, form, language, and style. Half of the examples were presented as recordings, half as texts. Male and female voices alternated for examples read.

A large variety of skills and talent was included in the ABET: athletic, artistic, or acrobatic outstanding accomplishments as well as ingenious inventions or admirable performances and competences in professional life. Physical skills and talents were presented as short video-clips; more intellectual performances described in short texts. The selection of suitable video-clips proved to be difficult, as many of them had an intrinsic artistic value or entailed visual and auditory components (e.g., background music, beautiful views) which distracted from the core element, namely excellence.

In the Piagetian tradition, Kohlberg (1969; 1976; 1981) proposed a stage theory of moral thinking which goes well beyond Piaget's initial formulations. He described the development of moral reasoning as a process in which individuals pass through six qualitatively different stages of moral reasoning in a universal and invariant sequence, from "obedience and punishment orientation" on level 1 to "orientation towards universal ethical principles" (e.g., justice, truth, reciprocity and equity, respect of the dignity of others) on level 6. Furthermore, he asserted that moral reasoning and judgment is not significantly determined by socio-cultural context. This assumption was challenged by a number of researches in the emerging field of cultural psychology that looked carefully not only at the moral stages but also at the kinds of reasoning that individuals from different cultures bring to moral discourse (Haidt, Koller, & Dias 1993; Huebner & Garrod, 1993; Lei & Cheng, 1987; Rogoff, 1990; Snarey, 1985; Shweder, Miller, & Mahapatra, 1990; Shweder, Jensen, & Goldstein, 1995; Tappan & Packer, 1991). Social and cultural context seems to be a key factor affecting the moral development of individuals: individual moral development refers to how one develops skill in understanding, managing, and adhering to the moral expectations of one's culture (Shweder, 1990). Therefore, general moral principles which are shared across

cultures do not characteristically lead to similar judgments about right or wrong and Kohlberg's cognitive-developmental theory seems to apply only to Western societies with their individualistic social forms and liberal values (Shweder, Mahapatra & Miller, 1990).

More recently, researchers (Haidt, 2001; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001) attempted to isolate moral intuition from cognitive moral reasoning in the lab and thus initiated a third approach to moral judgment, the social intuitionist approach which assumes emotion rather than cognition to be the central predictor of moral judgment. Subsequently, Haidt and Graham (2007) developed a 5-part taxonomy which included five psychological systems assumed to provide the foundations for the world's many moralities: harm/care, fairness/reciprocity, authority/respect, ingroup/loyalty, purity/sanctity. The relative importance and realization of these five ethics depends on the respective culture. Western liberal morality mainly reflects the ethic of autonomy (i.e., harm/care and fairness/justice) but there are alternative forms of the moral understanding, namely, the ethic of community (authority/respect + ingroup/loyalty) and the ethic of divinity (purity/sanctity).

Given the large cultural differences in the rules of morality, in moral reasoning, in moral understanding, and in moral intuitions, it was decided to rely on Kohlberg's universal ethical principles (e.g., justice, truth, reciprocity and equity, respect of the dignity of others) and on Haidt and Graham's ethic of autonomy as a guideline to search for and collect displays of virtue and moral goodness that conform to the reality of West Europeans and therefore might enter the ABET: short stories, newspaper articles, or excerpts from ethic class textbooks.

The main difficulty resided in finding realistic examples of virtue and moral goodness, not too extreme examples which might sound kitschy and unrealistic. In a next step, a list of areas in which ethical and moral conflicts may occur in the urban western world and moral goodness be expressed was established: human coexistence (e.g., altruism, self-sacrifice,

respect of other people's property), medicine (e.g., assisted suicide, abortion), research (e.g., plagiarism, animal experiments), economy (e.g., economic espionage, money laundering), media and press (e.g., respect of the sphere of personal privacy), sport (e.g., doping, cheating), sexuality (e.g., child abuse, rape), environment (e.g., pollution, animal protection), and international relations (e.g., war and peace, terrorism). Finally, one or two examples per category were drawn from the initial pool of items.

The 50 ABET items (i.e., texts, pictures, and audio or video files) were presented online in mixed order. Respondents could take as much time as they wanted to read, look at, or listen to the items before they indicated for each one the extent to which it elicited the experience of beauty, excellence, awe, aesthetical pleasure, admiration, and elevation.

*Pretest*. Three persons tested the initial version of the ABET and gave feedback mainly on comprehensibility difficulties and technical problems they had been faced with. After revising the ABET accordingly, a pretest was run in summer 2009. The sample consisted of 46 participants (27 women, 19 men) aged 18 to 78 years ($M$ = 40.96; $SD$ = 12.71). Out of these 46 participants, 19 were married, 27 living alone; 42 were professionally active in different areas, 4 presently not working.

The pretest aimed at an initial validation of the test (i.e., examination of the item difficulties, item-total correlations, and internal consistencies of the scales) and at a reduction of the number of items from initially 50 to 30, as the first version of the ABET took about 60 minutes to be filled in which was too long. The selection of the six items per scale that were finally retained aimed at the best balance possible between item difficulty, content validity (i.e., presenting the respondents with as different examples as possible), and homogeneity of the scales.

**Online survey**

After the pretest and initial validation of the ABET, an online survey comprising all tests and questionnaires that would be used within the scope of this research was designed and programed. It included (a) the whole VIA-IS, in order to be up to giving participants a standardized feedback on their character strengths profile, (b) the ABE (already comprised in the VIA-IS), the EBS, and the ABET as measures of the sensitivity to beauty and goodness, and (c) the SSS-V, the absorption scale, and the DPES as measures of possibly related constructs. Additionally, general socio-demographic data and more specific personal information related to the research questions (e.g., musical activities) were collected. Four blocks of ABET items were presented alternately with the other questionnaires in order to introduce as much variety in the survey as possible. The succession of the items and measurement instruments of the survey are displayed in Table 3.

The same online survey was used to collect the data for each of the three studies, although all data were not included in the respective data analyses. A website was created specifically for the purpose of this research (www.sinn-für-das-schöne.ch). The idea was that respondents would register on this website and fill in the survey from their own personal computers. Participants could pause at any time and log in again later to complete the survey. Answers were saved every time they clicked on "continue".

To motivate as many persons as possible to take part in the study, possible sponsors were contacted and asked if they would donate a prize related to appreciation of beauty (e.g., concert or theater tickets, vouchers for wellness or cosmetic treatments, fine foods, or wine). Furthermore, it was planned (and announced) that everyone who would fill in the whole survey would automatically receive standardized feedback about his or her character strengths profile.

Table 3. *Succession of questionnaires and items in the online survey.*

| | |
|---|---|
| Socio-demographic questions (1st part) | |
| ABET (1st part) | |
| ABET1 | Talent (video-clip) |
| ABET2 | Painting |
| ABET3 | Music |
| ABET4 | Moral |
| ABET5 | Lyric |
| ABET6 | Music |
| ABET7 | Moral |
| Absorption scale (34 items) | |
| ABET (2nd part) | |
| ABET8 | Lyric |
| ABET9 | Painting |
| ABET10 | Talent |
| ABET11 | Lyric |
| ABET12 | Painting |
| ABET13 | Music |
| ABET14 | Moral |
| ABET15 | Talent (video-clip) |
| Engagement with Beauty Scale (14 items) | |
| ABET (3rd part) | |
| ABET16 | Music |
| ABET17 | Moral |
| ABET18 | Painting |
| ABET19 | Lyric |
| ABET20 | Moral |
| ABET21 | Music |
| ABET22 | Talent |
| Sensation Seeking Scale (40 items) | |
| ABET (4th part) | |
| ABET23 | Painting |
| ABET24 | Lyric |
| ABET25 | Moral |
| ABET26 | Music |
| ABET27 | Talent |
| ABET28 | Lyric |
| ABET29 | Painting |
| ABET30 | Talent (video-clip) |
| Dispositional Positive Emotions Scale (38 items) | |
| Socio-demographic questions (2nd part) | |
| VIA-IS (240 items) | |

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# PART I - Are only emotional strengths emotional?

## Character strengths and disposition to positive emotions

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**Abstract**

This study aimed at examining the relations between character strengths and dispositional positive emotions (i.e., joy, contentment, pride, love, compassion, amusement, and awe). A sample of 574 German-speaking adults filled in the *Dispositional Positive Emotion Scales* (*DPES*; Shiota, Keltner, & John, 2006), and the *Values in Action Inventory of Strengths* (*VIA-IS*; Peterson, Park, & Seligman, 2005). The factorial structure of the DPES was examined on item level. Joy and contentment could not be clearly separated; the items of the other five emotions loaded on separate factors. A confirmatory factor analysis assuming two latent factors (*self-oriented* and *object/situation specific)* was computed on scale level. Results confirmed the existence of these factors, but also indicated that the seven emotions did not split up into two clearly separable families. Correlations between dispositional positive emotions and character strengths were positive and generally low to moderate; a few theoretically meaningful strengths–emotions pairs yielded coefficients > .40. Finally, the link between five character strengths factors (i.e., emotional strengths, interpersonal strengths, strengths of restraint, intellectual strengths, and theological strengths) and the emotional dispositions was examined. Each of the factors displayed a distinctive "emotional pattern"; *emotional strengths* evidenced the most numerous and strongest links to emotional dispositions.

*Keywords*: Positive Psychology, character strengths, positive emotions

## Introduction

Positive Psychology focuses on conditions and processes that enable human flourishing and optimal functioning (Gable & Haidt, 2005), more precisely on positive subjective experiences, positive individual traits, and positive institutions (Seligman & Csikszentmihalyi, 2000). It is hypothesized that positive institutions enable the display of positive traits, namely, character strengths, which in turn foster positive experiences and positive outcomes (Peterson, 2006).

A large empirical literature deals with the link between character strengths and positive outcomes such as, for example, recovery from illness (Peterson, Park, & Seligman, 2006), life and work satisfaction (Peterson, Park, Hall, & Seligman, 2009), well-being (Park, Peterson, & Seligman, 2004), or job performance (Harzer & Ruch, 2011). The relation between character strengths and positive subjective experiences (i.e., emotions) has received less research attention. Only a few studies examined the link between specific character strengths, such as love (Park & Peterson, 2006a), zest (Park & Peterson, 2006a), hope (Park & Peterson, 2006a; Yurkewicz (2009), gratitude (Park & Peterson, 2006a), self-control (Yurkewicz, 2009), kindness (Otake, Shimai, Tanaka-Matsumi, Otsui, & Fredrickson, 2006; Tkach, 2006), wisdom (Beaumont, 2009), or forgiveness (Maltby, Day, & Barber, 2005; Pinto & Barros-Oliveira, 2006) and positive affect in children, adolescents and adults.

Although there is increasing recognition of the existence of multiple positive emotions (e.g., Ekman, 1994; Fredrickson, 1998; Haidt, 2003; Lazarus, 1991), most of these studies relied on subjective happiness as a uni-dimensional measure of positive affect. This raises the question, whether such a uni-dimensional measure can meet the plural nature of positive emotions, or whether a pluri-dimensional measure would be more appropriate. Furthermore, current empirical data suggest the existence of very specific links between some of the character strengths and positive emotions. Therefore, the main idea of the present study was

to combine a measure of multiple character strengths with a measure of distinct positive emotions, to make a step further into a deeper understanding and a finer grained analysis of the relation between character strengths and positive emotions.

**Measuring character strengths**

In Peterson and Seligman's (2004) *Values-in-action classification* (VIA), 24 character strengths - defined as positively valued traits that enable the "good life" (p. 4) - are theoretically assigned to six universal virtues which consistently appear in philosophical and religious texts across culture and history (Dahlsgaard, Peterson, & Seligman, 2005), namely, wisdom and knowledge, justice, courage, humanity, temperance, and transcendence. Virtues are conceived as abstract concepts, whereas character strengths are seen as concrete processes and mechanisms which allow displaying the virtues in every-day life, and which can be assessed. The best-studied and at the moment standard instrument for the assessment of character strengths is the Values in Action Inventory of Strengths (*VIA-IS*; Peterson, Park, & Seligman, 2005).[8]

According to Peterson and Seligman (2004), their classification of the 24 character strengths under the six virtues is not a definitive one. Specific strengths of character might be added, deleted, or combined, and their organization under core virtues might be changed "as theory and research […] proceed" (p. 31). They computed first exploratory factor analyses on scale level, and reported about five factors which were similar but not identical to the six virtues of the a-priori classification (Peterson & Seligman, 2004, p. 632). The factor of *emotional strengths* was loaded by zest, hope, bravery, humor, love, and social intelligence. The factor named *interpersonal strengths* combined leadership, teamwork, kindness, forgiveness, fairness, and modesty. The factor called *strengths of restraint* comprised

[8] Details concerning the reliability and validity of the VIA-IS are presented in Peterson and Seligman (2004), Park and Peterson (2006b), Park, Peterson, and Seligman (2006), Peterson, Ruch, Beermann, Park, and Seligman (2007), Peterson, Park, and Seligman, (2006), Peterson and Seligman (2004). Details for the German version can be found in Ruch et al. (2010).

prudence, perseverance, self-regulation, honesty, and perspective. The factor representing *intellectual strengths* embraced love of learning, creativity, curiosity, and judgment. And finally, the fifth factor, identified as *theological strengths*, grouped religiousness, gratitude, and appreciation of beauty. A few years later, this five-factor solution was reproduced for the German VIA-IS (Ruch, Proyer, Harzer, Park, Peterson, & Seligman, 2010), and for the Hebrew version as well (Littman-Ovadia & Lavy, 2012).

Later, Peterson (2006) also discussed a factor analysis based on ipsative data. Two bipolar factors emerged with the strength being located in a full circumplex. The first factor was labeled *strengths of the heart* (e.g., religiousness, humor) *vs. mind* (e.g., self-regulation, perseverance), and contrasted strengths entailing emotional expression vs. intellectual restraint. The second factor was named *strengths focusing on the self* (e.g., creativity, curiosity) *vs. on others* (e.g., teamwork, leadership), and distinguished between strengths focusing on self vs. others. This two-factor solution could be reproduced for the German VIA-IS (Ruch et al., 2010), but not for the Hebrew version (Littman-Ovadia & Lavy, 2012).

**Measuring the disposition to experience positive emotions**

Up to now, two instruments measuring the disposition to experience different positive emotions do exist: a modified version of Izard's (1977) *Differential Emotions Scale* (m*DES*; Fredrickson, Tugade, Waugh, & Larkin, 2003), and the *Dispositional Positive Emotions Scales* (*DPES*; Shiota, Keltner and John, 2006). The modified DES comprises joy, interest, and eight negative emotions – all of which appear in the original DES – plus eight additional discrete positive emotions (i.e., amusement, awe, contentment, gratitude, hope, love, sexual desire, and pride), and assesses how often these emotions were experienced during the last 24 hours. The DPES, in turn, measures the general disposition to experience seven distinct positive emotions (i.e., joy, contentment, pride, love, compassion, amusement, and awe).

We wanted to correlate character strengths, which are assumed to be trait-like (Peterson & Seligman, 2004), with the disposition to experience positive emotions. The DPES seemed particularly suitable with respect to this aim, as it assesses the overall disposition to experience distinct positive emotions (whereas the mDES measures their occurrence during the last 24 hours, thus being rather a state, than a trait measure). Furthermore, several studies using this specific instrument and providing details about its psychometric quality were published recently. Therefore, the DPES was selected for this research.

Shiota et al. (2006) developed the DPES to investigate the relation between the disposition to experience seven positive emotions and two core aspects of personality: the Big Five factors Extraversion, Agreeableness, Openness to Experience, Neuroticism and Conscientiousness and adult attachment style. Correlations showed theoretically meaningful differentiation. For example, Extraversion was significantly associated with all of the positive emotion dispositions, whereas only the agency-focused emotions joy, contentment and pride correlated significantly with Conscientiousness, and only love and compassion with the prosocial personality disposition Agreeableness. In subsequent studies, selected subscales were used rather than the whole test. For example, Shiota, Keltner, and Mossman (2007) used the joy, contentment, and awe subscales within the scope of a research about elicitors, appraisals, and effect on self-concept of awe. The happiness, pride and humor subscales were employed to study positive emotions disturbance in depression (Gruber, Oveis, Keltner, & Johnson, 2010). Finally, the joy, pride, love, and compassion subscales were utilized to examine whether the HPS was differentially related to reward and achievement-related, but not prosocial dimensions of positive emotion (Gruber, & Johnson, 2009).

**Relations between character strengths and positive emotions: uni- or bidirectional?**

Two different ideas about the nature of the directionality of the link between character strengths and positive emotions can be found in the literature. On one side, there is the

postulate that strengths are psychologically fulfilling, and thus contributing to the "good life (Peterson and Seligman, 2004); therefore, living in accordance to one's core strengths, "leads to more positive emotions, to more meaning, to more accomplishment, and to better relationships" (Seligman, 2011, p. 24). On the other side, there is Fredrickson's (1998, 2001) broaden-and-build theory which assumes not only that positive emotions help building and developing personal resources (e.g., positive traits), but also that the growing and flourishing of these resources predict increased emotional well-being over time. Fredrickson (2001) names this bidirectional or circular effect an "upward spiral" (p. 223). The "upward spiral" model suggests that the link between character strengths and positive emotions might be reciprocal, with not only character strengths fostering positive emotional experiences (Peterson, 2006), but also repeated positive emotion nurturing the strengths. Fredrickson (2001; see also Fredrickson, Tugade, Waugh, & Larkin, 2003) stresses the fact that it is the tendency to regularly experience even small positive emotions which broadens and builds. Consequently, to study the relations between positive emotions and character strengths, the *disposition* to repeatedly experience positive emotions should be taken into account.

**Aims of the study**

The main purpose of the present study was to investigate the relationships between character strengths and the disposition to experience several distinct positive emotions. Within this general framework, three more specific objectives were set. The first objective was to examine the factor structure of the DPES on item and on scale level, in order to address the question whether the seven dispositional emotions can be considered as distinct constructs or should rather be grouped into families. Fredrickson's (1998) initial broaden-and-build model comprised three positive emotions, namely, joy, interest, and contentment. When additional emotions were later included (i.e., love, pride, gratitude, and elevation), she discussed the difference between emotions which were mainly intrapersonal or individual,

and emotions which had social causes and consequences (Fredrickson, 2000, pp. 2-3). Joy, pride, and contentment were assumed to belong to the first category; love, gratitude, and elevation to the second. At the same time, Fredrickson (2000) stressed the fact that each of these emotions might fit both of these categories to varying degrees. Therefore, the question is whether a distinction between two groups of positive emotions, namely, the self- and the other-focused, would be sufficient to study the relations between character strengths and positive emotions, or whether a finer-grained analysis including the seven distinct positive emotions would be more suitable.

The second objective was to investigate the correlations between the seven dispositions to positive emotions and the 24 character strengths. Some of the character strengths included in Peterson and Seligman's (2004) classification seem to relate clearly to one of the positive emotions included in the DPES. For example, *appreciation of beauty and excellence*, described as "a specific emotional responsiveness, the tendency to experience at least subtle self-transcendent emotions such as awe, admiration, and elevation" in the book about the VIA classification (Peterson, 2004, p. 539), might be expected to be closely linked to awe (or elevation) taken as an emotion. Likewise, the character strength *love*, described as a "cognitive, behavioral, and emotional stance toward others" (p. 304), and the emotion of *love* were presumed to go together; the character strength *bravery*, which implies "self-efficacy and self-confidence" (p. 217), and the emotion of *pride*; the character strength *kindness*, which involves "doing the good for others with love" (p. 326), and the disposition to experience compassion; the character strength *humor*, defined as "liking to laugh and joke, bringing smiles to other people" (p. 530), and dispositional amusement. Character strengths, are defined as "thoughts, feelings, and/or actions" (Peterson & Seligman, 2004, p. 23), whereas emotions are supposed to be only feelings. The two constructs should therefore be overlapping, but not identical. Following this assumption, the correlations between the five

above-mentioned character strength-emotion pairs were expected to be positive, significant, and of medium effect size. It was also predicted that all other correlations would be numerically lower.

The third objective was to take a close look at the "emotional pattern" of the VIA-IS factors reported in the literature. With respect to this last objective, the particular focus was on the factor Peterson and Seligman (2004) labeled *emotional strengths*. However, within the scope of this study, it will not only be of interest to examine how the *emotional strengths* relate to dispositional positive emotions, in order to understand what makes them "emotional", but also to study the link to emotionality of the other four strengths groups, thus answering the question whether only emotional strengths are emotional.

## Methods

### Participants

The sample consisted of 574 German-speaking adults (345 women, 229 men) aged 18 to 86 years ($M$ = 43.20; $SD$ = 12.38). With respect to their highest educational achievement, 4% of the participants indicated to have achieved compulsory education, 41% an apprenticeship, 10% a baccalaureate, and 45% a University degree; 51 % indicated being married or living with their partner, 49 % lived alone (single, divorced, or widowed). In regard to employment, 81% reported to be working, and 19% to be presently unemployed, studying, or retired.

Volunteers were recruited via flyers, e-mails, Internet sites of popular scientific psychological journals and via short articles about Positive Psychology published in widely read Swiss magazines. Participants filled in the DPES and the VIA-IS along with other questionnaires within the scope of an online-survey. Respondents were informed about the nature of the study. The fact that they could quit the survey at any moment was highlighted. Furthermore, they were told that they would not be paid, but receive standardized feedback

about their character strengths profile (VIA-IS) and take part in a raffle after completion of the questionnaire. After reading this information, participants had to click on an "informed consent" box before they could go on.

**Instruments**

The *Values in Action Inventory of Strengths* (*VIA-IS*; Peterson, Park, & Seligman, 2005) consists of 240 items for the self-assessment of the 24 character strengths (10 items per strength) included in the classification of Peterson and Seligman (2004). The VIA-IS uses a 5-point rating format (from 1 = *very much unlike me* to 5 = *very much like me*). A sample item is "I know that I will succeed with the goals I set for myself" (hope). For the German VIA-IS, Ruch et al. (2010) reported about internal consistencies ranging from .71 (honesty) to .90 (spirituality), with a median of .77. In their sample, retest reliabilities were comparable to the internal consistencies.

The *Dispositional Positive Emotion Scales* (*DPES*; Shiota et al., 2006) is an instrument for the self-assessment of the disposition to experience seven emotions, namely, joy, contentment, pride, love, compassion, amusement, and awe. It consists of 38 items (5 or 6 items per scale), and uses a 7-point rating format (1 = *strongly disagree* to 7 = *strongly agree*). A sample item is "I often feel bursts of joy" (joy). Shiota et al. (2006) reported reliabilities ranging from .75 (amusement) to .92 (contentment) with a median of 0.80.

**Procedure**

*Translation of the DPES*. Within the scope of this study, a German version of the DPES was developed. The first author translated the items into German, aiming at a close fit with the original English formulations. An American English speaking bilingual person did an independent back translation. Differences between the original English form and the back translation were discussed with the authors of the test and followed by several minor changes.

The items of the original questionnaire and of the final German version are shown in Appendix A.

*Analyses*. To examine the factor structure of the DPES on scale level, a confirmatory factor analysis was computed using SPSS Amos (Version 18; Arbuckle, 2007). Different models were compared and their fit was tested using the p-value of the chi-square ($\chi^2$; Hair, Anderson, Tatham, & Black, 2006), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), and the root-mean-square error of approximation (RMSEA; Hu & Bentler, 1998) as criteria. A non-significant p-value of chi-square ($\chi^2$) indicates good fit. But the chi-square statistic is very sensitive to sample size (Hair et. al., 2006); additional indices should therefore always be taken into account (Bentler, 1990; Hu & Bentler, 1999). The goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), and the root-mean-square error of approximation (RMSEA) are commonly used alternatives. A GFI and an AGFI equal or higher .90 indicate a good-fitting model, a GFI and an AGFI equal or higher .95 an excellent-fitting model. For the RMSEA, values equal or lower .08 can be interpreted as good fit.

## Results

### Primary analyses

Skewness and kurtosis of all VIA-IS scales indicated normal distribution. The means ranged from 3.08 (religiousness) to 4.00 (curiosity), and the reliabilities from .72 (honesty and self-regulation) to .90 (religiousness), with a median of .77. The means of the DPES scales ranged from 4.32 (amusement) to 5.58 (pride), thus all lying above the scale midpoint of 4. The reliabilities ranged from .58 (awe) to .89 (contentment), with a median of .73, which is below the reliabilities reported by Shiota et al. (2006) for the original version (median = .80), but still shows that the scales yielded acceptable to high internal consistencies. Correlations with demographics were generally moderate in size, yet

statistically significant in most cases due to the number of participants. Women scored significantly higher than men for joy, contentment, compassion and awe; age was related positively to contentment and pride, but negatively to amusement. Therefore, all subsequent correlational analyses controlled for a potential impact of demographics.

The correlations among the seven DPES scales ranged from .10 (compassion with amusement) to .79 (joy with contentment). Four of the scales, namely, contentment, joy, pride, and to a somewhat lesser extent, love - were highly correlated among each other and seemed to form a cluster. The other three scales showed clearly lower correlations, not only with the cluster, both also among each other.

**Factor structure of the DPES**

In order to get a clear idea of the relationships between the seven emotional dispositions (i.e., the observed variables) and their underlying latent constructs, two factor analyses were computed. The first one, on item level, yielded a 6-factor solution, with all joy and contentment items loading on the first factor, and the pride, love, compassion, humor, and awe items loading on a separate factor each. The second one, a confirmatory factor analysis, (CFA) was computed on scale level. The model to be tested was conceived following Fredrickson's (2000) distinction between individual and social emotions and therefore comprised two latent factors. The first factor had paths leading to contentment, pride, and joy, and was labeled *self-oriented,* as contentment, pride, and to a somewhat lesser extent joy, are not elicited by a specific, external stimulus, but rather reflect the longer-lasting appraisal of one's personal situation. The second factor had paths leading to love, compassion, amusement, and awe, and was labeled *object or situation specific,* as these emotions are elicited by external stimuli which may, but must not, be of social nature. The fit of this initial model was $\chi^2$ (13, N = 574) = 157.7, p = .001; GFI = .926; AGFI = .840; RMSEA = .139, which is not satisfactory according to the criteria specified in the methods

section. As Fredrickson stressed the fact that each of the positive emotions might fit both of the categories to varying degrees, several models with additional paths were computed and compared. The model which fitted the data best is shown in Figure 1.

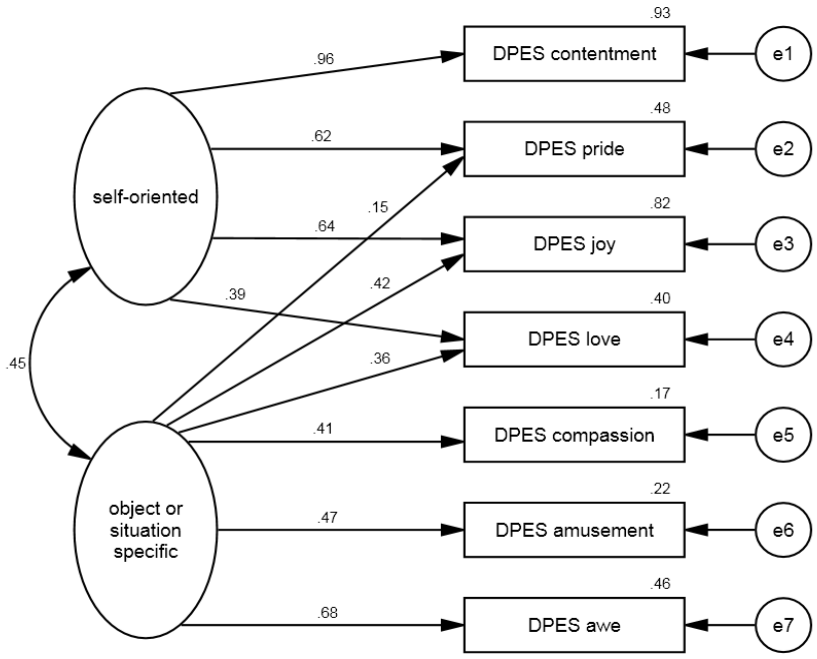


Figure 1. Confirmatory factor analysis of the DPES.
$\chi^2$ (10, N = 574) = 42.58, $p$ = .001; GFI = .980, AGFI = .944, RMSEA = .075

Figure 1 shows that in this model four of the seven emotional dispositions, namely, DPES contentment, compassion, amusement, and awe were explained by only one of the latent factors, whereas the other three, that is DPES pride, love and joy, were explained to various degrees by both. The variance accounted for by one or both latent factors ranged from .93 (DPES contentment) to .17 (DPES compassion).

The first factor analysis showed that the putative factor structure of the DPES was confirmed, except for the joy and contentment subscales, which could not easily be separated. The CFA substantiated the existence of two correlated latent factors, but also highlighted that the emotional dispositions did not split up into two clearly separable families, and that there is considerable variability in some positive emotion dispositions that is not accounted for by

the self- vs. other-focused distinction. Following these results, we assumed the seven emotional dispositions to be distinct constructs and included them as such in all subsequent analyses – together with the two emotion factors.

**Correlations between character strengths and emotional dispositions**

In a next step, the VIA-IS and DPES scores were correlated. Table 1 shows that most correlations were numerically low to moderate (< .40). The highest correlations were found between the character strengths of zest and hope, and the emotional dispositions of joy and contentment (.62 to .67); all other correlations were below 0.60, which is in line with the idea of overlapping, but not identical constructs. A few negative correlations appeared, but they were numerically small (<.11); it can therefore be said that overall, character strengths and the disposition to experience positive emotions go together.

We had predicted correlations of medium effect size for the five character strengths which had a direct counterpart in one of the seven dispositional emotions, and this was confirmed: VIA-IS bravery with DPES pride (.50), VIA-IS love with DPES love (.53), VIA-IS kindness with DPES compassion (.44), VIA-IS humor with DPES amusement (.54) and VIA-IS appreciation of beauty and excellence with DPES awe (.54). Love, compassion, amusement, and awe were mainly linked to this one specific character strength, whereas pride was strongly related to several other character strengths, namely, curiosity, perspective, perseverance, zest, love, social intelligence, leadership, hope, and humor. The correlation patterns of dispositional joy and dispositional contentment with the 24 character strengths were nearly identical, which is not surprising considering the close link between them ($r$ = .79). These two emotional dispositions, which have no specific counterpart in one of the character strengths, displayed numerically strong correlations with the character strengths of curiosity, zest, love, gratitude, hope, and humor. Two character strengths displayed strikingly few significant correlations with the dispositional emotions, namely, modesty and prudence.

Table 1. *Correlations of the VIA-IS scales with the DPES scales and the factor scores of the two DPES factors.*

| strengths | joy | cont | pride | love | comp | amuse | awe | self | other |
|---|---|---|---|---|---|---|---|---|---|
| creativity | .29*** | .18*** | .28*** | .10* | .11* | .28*** | .33*** | .27*** | .32*** |
| curiosity | .50*** | .51*** | .44*** | .33*** | .12** | .20*** | .31*** | .54*** | .27*** |
| judgment | .09* | .08 | .26*** | -.05 | .15*** | .05 | .19*** | .12** | .17*** |
| learning | .27*** | .23*** | .23*** | .16*** | .13** | .17*** | .30*** | .27*** | .27*** |
| perspective | .22*** | .23*** | .41*** | .09* | .20*** | .12** | .22*** | .28*** | .23*** |
| bravery | .36*** | .32*** | .50*** | .19*** | .25*** | .16*** | .26*** | .41*** | .30*** |
| persevere | .22*** | .28*** | .42*** | .08 | .16*** | .01 | .12** | .30*** | .12** |
| honesty | .19*** | .19*** | .34*** | .10* | .29*** | -.01 | .10* | .23*** | .17*** |
| zest | .63*** | .62*** | .57*** | .41*** | .13** | .21*** | .28*** | .67*** | .27*** |
| love | .49*** | .48*** | .47*** | .53*** | .23*** | .16*** | .25*** | .58*** | .30*** |
| kindness | .37*** | .32*** | .30*** | .32*** | .44*** | .12** | .20*** | .37*** | .37*** |
| social int | .32*** | .31*** | .41*** | .29*** | .26*** | .18*** | .27*** | .39*** | .32*** |
| teamwork | .28*** | .26*** | .28*** | .27*** | .26*** | .07 | .14** | .31*** | .23*** |
| fairness | .23*** | .20*** | .24*** | .17*** | .37*** | -.01 | .16*** | .23*** | .26*** |
| leadership | .29*** | .27*** | .40*** | .18*** | .33*** | .09* | .23*** | .33*** | .30*** |
| forgiveness | .32*** | .34*** | .29*** | .35*** | .25*** | .05 | .19*** | .37*** | .24*** |
| modesty | .03 | .07 | .00 | -.02 | .26*** | -.11* | .10* | .01 | .13** |
| prudence | .07 | .11* | .21*** | .01 | .22*** | -.08 | .12** | .11* | .13** |
| self-regul | .17*** | .27*** | .34*** | .11* | .14** | -.01 | .1** | .27*** | .10* |
| beauty | .44*** | .31*** | .23*** | .24*** | .29*** | .23*** | .54*** | .36*** | .51*** |
| gratitude | .54*** | .49*** | .35*** | .35*** | .34*** | .14** | .42*** | .51*** | .43*** |
| hope | .63*** | .67*** | .62*** | .42*** | .13** | .18*** | .24*** | .71*** | .23*** |
| humor | .58*** | .49*** | .46*** | .35*** | .12** | .54*** | .29*** | .57*** | .39*** |
| religious | .31*** | .27*** | .19*** | .20*** | .24*** | .00 | .40*** | .29*** | .32*** |

*Note.* $N$ = 574 (male = 229, female = 345). Partial correlations, control for sex, and age. Cont = contentment; comp = compassion; amuse = amusement; self = self-oriented positive emotions; other = object or situation specific positive emotions.
*$p$ < .05. **$p$ < .01. ***$p$ < .001.

The correlations between the character strengths and the two DPES factors showed that the *self-oriented* dispositional emotions (i.e., joy, contentment, pride, and love) are mainly

related to curiosity, bravery, zest, love, gratitude, hope, and humor, whereas the *object or situation specific* dispositional emotions (i.e., compassion, amusement, and awe) are mainly related to appreciation and gratitude.

**Emotional pattern of character strengths factors**

A Varimax rotated principal component analysis on scale level was computed for the VIA-IS. The five factors Ruch et al. (2010) described, namely, (1) emotional strengths, (2) interpersonal strengths, (3) strengths of restraint, (4) intellectual strengths, and (5) theological strengths, could well be reproduced. In our sample, they explained 66.18 % of the variance; Tucker's phi coefficients were .98, .96, .99, .99, and .97. The 2-factor solution using ipsative data was examined as well. In line with previous studies (Ruch et al., 2010; Peterson & Seligman, 2006), the resulting two factors could be labeled as (1) mind (e.g., open-mindedness, prudence) vs. heart (e.g., kindness, gratitude) and (2) focus on self (e.g., creativity, judgment) vs. others (e.g., fairness, modesty). However, as Tuckers Phi coefficients for these two factors were -.89 and .76 respectively, the 2-factor solution was less satisfying than the 5-factor solution and therefore not included in subsequent analyses.

By correlating the factor scores for the five-factor solution with the seven emotional dispositions, it was possible to show that each of the factors displayed a distinct emotional "identity". Table 2 shows that the *emotional strengths* were characterized by numerically high (.47 to .59) positive correlations with joy, contentment, pride, love, and the DPES total score. The correlations with compassion, amusement, and awe were lower (.11 to .31) but still significant. The *interpersonal strengths* were mainly identified by their highly significant correlation with compassion (.38), and additionally by lower, but still significant, correlations with love (.14) and DPES total (.15). The *strengths of restraint* were positively correlated with pride (.32), and negatively with amusement (-.12). The main feature of the *intellectual strengths* was their medium high positive correlations with amusement, awe, and the DPES

Table 2. *Correlations between the disposition to positive emotions and the factor scores for a five-factor solution for the VIA-IS.*

| | DPES scales | | | | | | | | DPES factors | |
|---|---|---|---|---|---|---|---|---|---|---|
| VIA-Factors | joy | content | pride | love | compass | amuse | awe | total | self | other |
| emotional | .59*** | .57*** | .57*** | .47*** | .11* | .31*** | .16*** | .60*** | .66*** | .24*** |
| interpersonal | .09 | .06 | .06 | .14** | .38*** | -.05 | .07 | .15*** | .08 | .22*** |
| restraint | -.02 | .09 | .32*** | -.10* | .09 | -.12** | .01 | .04 | .09 | -.03 |
| intellectual | .19*** | .07 | .13** | .02 | .09 | .25*** | .36*** | .23*** | .13** | .32*** |
| theological | .34*** | .34*** | .06 | .23*** | .12 ** | -.02 | .39*** | .32*** | .29*** | .26*** |

*Note.* $N = 574$. Partial correlations, control for sex, and age. Content = contentment; compass = compassion; amuse = amusement; total = DPES total score; self = self-oriented emotions (joy, contentment, pride, love); other = object or situation specific emotions (compassion, amusement, awe).
*$p < .05$. **$p < .01$. ***$p < .001$

total score (.23 to .36). Finally, the *theological strengths* were defined by the conjunction of clear correlations with awe, joy, compassion, and the DPES total score (.32 to .39), as well as with love (.23) and compassion (.12) to a lesser extent.

By correlating the scores for the five strengths factors with the scores for the two emotional factors, the "emotional identities", although less differentiated, became even more evident. The numerically highest correlation (.66) was found between the *emotional strengths* and the self-oriented emotions. *Interpersonal* strengths were related only to the object or situation specific emotions, whereas the *intellectual strengths* additionally showed a small, but significant correlation with the self-oriented emotions. The *strengths of restraint* were linked with neither of the two factors. And finally, the *theological strengths* were characterized by the almost perfect balance between their link to both of the emotional factors (.29 and .26 respectively).

## Discussion

The present study aimed at exploring the relations between character strengths and the disposition to experience positive emotions. With respect to this main objective, we could show that the 24 character strengths included in the VIA classification were differentially associated with the tendency to experience seven positive emotions, namely, contentment, pride, joy, love, amusement, compassion, and awe: each of the character strengths exhibited a distinct "emotional identity", and each of the dispositional positive emotions displayed a unique correlation pattern with some of the character strengths. The correlations were positive and generally low to moderate, consistent with the idea that character strengths and emotions are overlapping, but not identical constructs.

The mainly *self-oriented* dispositional emotions (i.e., joy, contentment, and pride) proved to be related to all character strengths, except for judgment, prudence, and modesty, whereas the disposition to experience *object or situation specific* emotions (i. e. love,

compassion, amusement, and awe) was linked to few, specific character strengths. This indicates that, overall, good character goes together with the disposition to experience *self-oriented* positive emotions. By contrast, the disposition to experience one or another or none of the *object or situation specific* emotions, depends on the individual's very specific character strengths profile.

The five strengths factors, namely, the *emotional strengths*, the *interpersonal strengths*, the *strengths of restraint*, the *intellectual strengths*, and the *theological strengths* not only displayed distinct correlational profiles with the seven dispositions and the two emotions factors, but were also characterized by different degrees of emotionality. The *emotional strengths* - which we were of particular interest within the scope of this research - yielded the most numerous and the numerically highest links to dispositional positive emotions. This is an important result, as it shows that *emotional strengths* are rightly labeled "emotional". Additionally – and this is an important result as well, because it answers the question raised in the title of this contribution – the emotional strengths proved not to be the only ones associated with the dispositional positive emotions: three other strengths factors, namely, the *interpersonal, intellectual,* and *theological* strengths, yielded meaningful, significant correlations. The *interpersonal strengths* were correlated with love and compassion, the two relational *object or situation specific* emotional dispositions. The *intellectual strengths* which include love of learning, creativity, and curiosity, that is openness to the world and to anything new or unexpected, were mainly related to amusement and awe, which are both *object or situation specific* dispositional emotions. And finally, the *theological strengths* religiousness, gratitude and appreciation of beauty and excellence, which give meaning to one's life, were mainly related to the disposition to experience joy, contentment, and awe.

By definition, the *strengths of restraint* facilitate self-control and prevent the individual from any excess, including the overt expression of positive or negative feelings. Therefore,

we had not expected the restraint factor to yield significant correlations with one or several of the dispositional positive emotions. The fact that it showed to be associated with the disposition to feel pride, might be due to the formulation of the VIA items, which present self-control as a positive individual characteristic, with no negative connotation, and thus as a trait respondents may be proud of. However, overall, the *strengths of restraint* are probably rather related to the regulation of emotions, and to "display rules" (Ekman & Friesen, 1975), than to the actual experience of positive emotions.

The fact that each of the five strengths factors displayed a distinct correlation pattern with the dispositional positive emotions lead us to hypothesize that the "emotional component" of character strengths, which are conceived as "thoughts, feelings, and/or actions" (Peterson & Seligman, 2004, p. 23), might lie behind the factorial structure of the VIA-IS, in other words that the specific connection to positive emotions some of the character strengths share, brings them together as factors. What would be the criteria for this hypothesis to be confirmed? First, that the factorial structure of the VIA-IS would prove to be stable. Second, that the correlation pattern with the dispositional positive emotions could be reproduced in other samples, using other instruments than the DPES, or even including other emotions. As many studies confirmed the five-factor solution Peterson and Seligman (2004) described first (Gander, Proyer, Ruch, &Wyss, in press; Littman-Ovadia & Lavy, 2012; Peterson & Seligman, 2004; Proyer, Gander, Wyss, & Ruch, 2011; Ruch et al., 2010), the first criterion seems to be fulfilled. The second criterion, in turn, still needs to be examined, and this gives directions for further research.

Although our data showed that dispositional positive emotions and character strengths were related in many ways, they do not allow for any predictions about the nature of directionality in the relationship between the two constructs. Nevertheless, they have interesting implications, not only for researchers, but also practitioners in the field of Positive

Psychology. Up to now, a few intervention studies examined the long-term outcomes of either training character strengths on the disposition to experience different positive emotions, or of an intervention fostering positive emotions on the development of character strengths. Seligman (2005, 2011) reports about three exercises, namely, the "Gratitude Visit", the "Three Blessings", or "Signature Strengths Exercise" which proved to increase happiness and decrease depressive symptoms for up to six months. Mitchell, Stanimirovic, Klein, & Vella-Brodrich (2009) described the impact of an Internet intervention on well-being. Saroglou, Vassilis, Buxant, Coralie, Tilquin and Jonathan (2008) found that experimentally inducing self-transcendent emotions increased spirituality. The results of these studies give first empirical support not only to Peterson's (2006) assumption that character strengths foster positive experiences, or to Fredrickson's (1998, 2001) idea that positive emotions help building and developing positive traits, but also – indirectly – to Fredrickson's (2001) concept of an "upward spiral" (p. 223). They indicate that there might be a bidirectional or circular effect between positive emotions and personal resources. Considering that specific links exist between some of the positive emotions dispositions, and some of the character strengths, we suggest to extended to the concept of a single, general "upward spiral" to the idea of multiple, specific upwards spirals (e.g., a humor and disposition the experience amusement spiral, an appreciation of beauty and excellence and disposition to experience awe spiral, a kindness and disposition to experience compassion spiral, a curiosity and disposition to experience joy and contentment spiral). And this idea, in turn, could lead to the development of very specific interventions, which target one of these character strengths/ positive emotion pairs.

Limitations of studies give directions for future research. One limitation of this study, namely its reliance on correlational analysis, has already been discussed. The second limitation which needs to be mentioned is the fact that we relied only on the DPES to

measure the tendency to experience different positive emotions. The German version of the DPES, which was developed within the scope of this study, showed acceptable psychometric qualities. However, it ought to be further tested and cross-validated, in other samples and with special focus on the awe subscale, as this specific scale yielded the lowest alpha-coefficient, not only in this research, but also in previous studies using the original English version. Additionally, the measurement of the disposition to experience different positive emotions could be improved by (a) combining self- and peer-report instruments; (b) assessing actually experienced emotions over a longer period of time (for example with the mDES; Fredrickson et al., 2003); (c) studying emotions in the direct face-to-face interplay of different relational dyads and situations; (d) incorporating objective data using the Facial Action Coding System (FACS; Ekman & Friesen, 1978) - an anatomically based, comprehensive, objective technique to distinguish between all observable facial movement – in order to get a better understanding of the relation between different facets of positive emotions and facial expressions; (e) including the disposition to experience other types of positive emotions, for example gratitude, interest, or hope.

With respect to the last point, namely the necessity to consider other positive emotions, awe and awe-related emotions would be a particularly interesting field of research Up to now, very little is known about these emotions (Keltner & Haidt, 2003; Shiota, Keltner, & John, 2006; Shiota, Keltner, & Mossmann, 2007). In their contribution about the character strength *appreciation of beauty and excellence*, Haidt and Keltner (2004) mention the tendency to experience "self-transcendent emotions such as awe, admiration, and elevation" (p. 539), and hold that these emotions are elicited by three types of stimuli, namely human-made, natural, or moral beauty and excellence (see also Güsewell & Ruch, 2011).What exactly are these self-transcendent emotions? Different terminologies and classifications do exist. According to Haidt and Morris (2009), these emotions "transcend self-interest" (p. 287), they are elicited

by virtues and excellences of others, and include admiration, elevation, and compassion. Algoe and Haidt (200) describe the *other-praising* emotions (see also Haidt, 2003), a family of emotions arising from the exemplary actions of other people, like gratitude, elevation, and admiration. Ortony, Clore and Collins (1988) mention the *appreciation* emotions, which comprise admiration, awe, esteem, and respect. Faced with this multitude of emotions, terminologies, and classifications, we hold that empiric research focusing on of the relation between appreciation of beauty and these emotions families would be a promising field for future research.

The study of the variety and the specifics of the distinct dispositional positive emotions and the investigation of the way these emotions interact with character strengths are only at their beginning. This research was a first step into this direction, but leaves important questions open for future research. Which distinct positive emotions dispositions should be taken into account? What is the best way to assess them? Is there really a causal link between character strengths and positive emotions, and if so, is this link uni- or bidirectional? Which positive interventions could be designed to foster and study the hypothesized multiple specific character strengths/emotions upward spirals? To what extent are relations between character strengths and positive emotions determined by social or cultural factors? Alternatively, is there a universal connection between these two constructs?

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## *Appendix A.* Items of the English SSET and translation into German

**Joy / Freude**

*I often feel bursts of joy.*
Ich habe oft Freudenausbrüche.

*I am an intensely cheerful person.*
Ich bin eine äusserst fröhliche Person.

*I am often completely overjoyed when something good happens.*
Ich bin oft absolut überglücklich, wenn etwas Schönes passiert.

*On a typical day, many events make me happy.*
An einem normalen Tag macht mich vieles glücklich.

*Good things happen to me all the time.*
Mir passieren die ganze Zeit erfreuliche Dinge.

*My life is always improving*.
Mein Leben wird immer besser.

**Compassion / Mitgefühl**

*It's important to take care of people who are vulnerable.*
Es ist wichtig, sich um verletzliche Menschen zu kümmern.

*When I see someone hurt or in need, I feel a powerful urge to take care of them.*
Wenn ich bemerke, dass jemand verletzt oder in Not ist, verspüre ich einen starken Drang ihm zu helfen.

*Taking care of others gives me a warm feeling inside.*
Für andere zu sorgen gibt mir ein warmes inneres Gefühl.

*I often notice people who need help.*
Mir fallen oft Menschen auf die Hilfe brauchen.

*I am a very compassionate person.*
Ich bin ein sehr mitfühlender Mensch.

**Contentment / Zufriedenheit**

*I am generally a contented person.*
Im Grossen und Ganzen bin ich ein zufriedener Mensch.

*I am at peace with my life.*
Ich bin im Einklang mit meinem Leben.

*When I think about my life I experience a deep feeling of contentment.*
Wenn ich über mein Leben nachdenke, empfinde ich eine tiefe Zufriedenheit.

*I feel satisfied more often than many people.*
Ich bin häufiger zufrieden als die meisten anderen Menschen.

*My life is very fulfilling.*
Mein Leben ist sehr erfüllend.

**Humor / Humor**

*I find humor in almost everything.*
Ich finde fast an allem etwas Komisches.

*I really enjoy teasing people I care about.*
Ich necke Menschen aus denen ich mir etwas mache richtig gern.

*I am very easily amused.*
Ich amüsiere mich sehr leicht.

*The people around me make a lot of jokes.*
Die Menschen in meiner Umgebung machen viele Witze.

*I make jokes about everything.*
Ich mache mich über alles Mögliche lustig.

**Love / Liebe**

*Other people are generally trustworthy.*
Im Allgemeinen sind andere Menschen vertrauenswürdig.

*I develop strong feelings of closeness to people easily.*
Ich entwickle leicht eine starke Vertrautheit mit anderen.

*I find it easy to trust others.*
Es fällt mir leicht, anderen zu vertrauen.

*I can depend on people when I need help.*
Es ist für mich kein Problem, von anderen abzuhängen, wenn ich Hilfe brauche.

*People are usually considerate of my needs and feelings.*
Für Gewöhnlich gehen meine Mitmenschen rücksichtsvoll mit meinen Bedürfnissen und Gefühlen um.

*I love many people.*
Ich liebe viele Menschen.

**Pride / Stolz**

*I feel good about myself.*
Ich habe ein gutes Gefühl mir gegenüber.

*I am proud of myself and my accomplishments.*
Ich bin stolz auf mich und meine Fähigkeiten.

*Many people respect me.*
Ich werde von vielen respektiert.

*I always stand up for what I believe.*
Ich setze mich immer ein für das, woran ich glaube.

*People usually recognize my authority.*
Meine Autorität wird normalerweise anerkannt.

**Awe / Ehrfurcht**

*I often feel awe.*
Ich empfinde häufig Ehrfurcht.

*I see beauty all around me.*
Ich sehe Schönheit rings um mich herum.

*I feel wonder almost every day.*
Ich staune fast jeden Tag.

*I often look for patterns in the objects around me.*
Ich suche oft nach Mustern in den Dingen die mich umgeben.

*I have many opportunities to see the beauty of nature.*
Ich habe viele Gelegenheiten die Schönheit der Natur zu sehen.

*I seek out experiences that challenge my understanding of the world.*
Ich bin auf der Suche nach Erfahrungen die mein Verständnis der Welt in Frage stellen.

# PART II - Are there multiple channels through which we connect with beauty and excellence?

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**Abstract**

This research answers the question whether there are multiple channels through which we connect with beauty and excellence, and thus contributes to the understanding of the structure of appreciation. Two models were examined: the *appreciation of beauty and excellence* model (Haidt & Keltner, 2004), and the *engagement with beauty* model (Diessner, Solom, Frost & Parsons, 2008). Study 1 describes the development and initial validation of the Appreciation of Beauty and Excellence Test (ABET), which assesses the types of appreciation included in Haidt and Keltner's (2004) model. In study 2, the appreciation of beauty and excellence subscale of the *Values In Action Inventory of Strengths* (VIA-IS; Peterson & Seligman, 2005), the *Engagement with Beauty Scale* (EBS; Diessner et al., 2008), and the ABET were included in a structural equation modeling analysis. Results suggested a new model encompassing the two previous ones, and distinguishing between natural beauty, artistic beauty, and non-aesthetic goodness.

*Keywords*: appreciation of beauty and excellence, engagement with beauty, Positive Psychology, character strengths

*Though we travel the world over to find the beautiful,*
*we must carry it with us, or we find it not.*
*Ralph Waldo Emerson (1941, p.121)*

## Introduction

Aesthetic sensitivity and the human tendency to experience strong emotional responses to art, beauty and excellence have been studied since ancient times in the context of philosophy and religion. Theorists concentrated mainly on characteristics of the objects that elicited these feelings, less on characteristics of those who appreciated them. The same tendency continued in the psychological approach to aesthetics. The main focus of research was on the objective features of different stimuli or objects of art. Little research examined individual differences in the perception of and reactions to beauty, until humanistic psychology - with its idea of an innate and powerful emotional response to beauty and excellence – brought in new perspectives on the question. Maslow (1964) studied individual differences in the degree to which people were open to *peak experiences* and to beauty. Costa and McCrae (1992) described *openness to aesthetics* as a "deep appreciation for art and beauty" (p. 17). *Openness to peak experiences and beauty* (Maslow, 1964), and *openness to aesthetics* (Costa and McCrae, 1992) are both one-dimensional. More recently, within the context of Positive Psychology, two multi-dimensional (i.e., structural) models of the sensitivity to the beautiful and to the good were proposed (Figure 1).

Figure 1 shows (a) the *appreciation of beauty and excellence*-model of Haidt and Keltner (2004), which combines the sensitivity to beauty in the physical world with the sensitivity to excellence in the social world (in turn sub-divided into the sensitivity

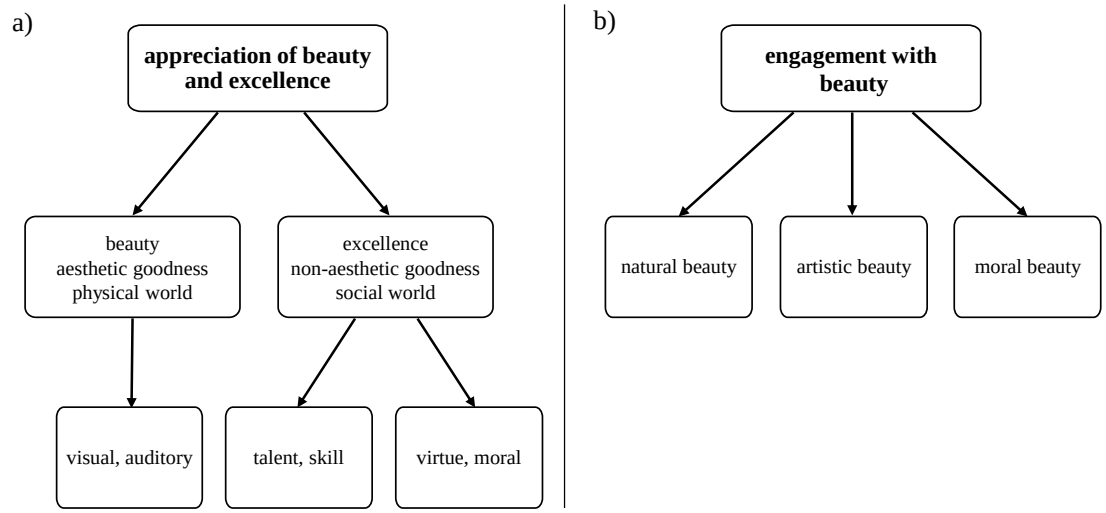


Figure 1. Structural Models: a) Appreciation of Beauty and Excellence (Haidt & Keltner, 2004), and b) Engagement with Beauty (Diessner et al., 2008).

to skills or talent, and virtue or moral goodness), and (b) the *engagement with beauty*-model of Diessner, Solom, Frost, Parsons, and Davidson (2008), who posited a specific responsiveness to natural, artistic and moral beauty.

**Two models of the sensitivity to the good and beautiful**

Peterson and Seligman (2004) introduced the character strength *appreciation of beauty and excellence* into their classification of good character, which encompasses six universal virtues and 24 more specific character strengths. *Appreciation of beauty and excellence* (or simply *appreciation*) denotes the ability to "find, recognize, and take pleasure in the existence of goodness in the physical and social worlds" (Haidt & Keltner, 2004, p. 537). According to Haidt and Keltner (2004) beauty is experienced as a response to goodness in the physical world - that is to the visual and auditory environment - whereas excellence is experienced when faced with goodness in the social world: exceptional skills or talents of other people, and displays of virtue or moral goodness. Therefore, *appreciation of beauty and excellence* means the sensitivity to three different types of goodness, namely, (a) physical beauty, (b) skills or talent, and (c) virtue or moral goodness (Figure 1a).

Diessner et al. (2008) proposed another model of the sensitivity to beauty, labeled engagement with beauty. In this model, the difference between goodness and beauty, especially the difference between moral goodness and beauty, is crucial, and lies in the emotional involvement of the observer. An act of moral goodness may be cognitively experienced as such, even without emotional involvement; however, it becomes an act of moral beauty if the observer feels moved and elevated. The act is the same, but the subjective, emotional reaction is different. According to Diessner et al. (2008), this distinction between goodness and beauty, may also be applied to human made objects, or nature. Engagement with beauty comprises the sensitivity to artistic, moral, and natural beauty (Figure 1b).

**Open questions**

Haidt and Keltner (2004) raised a question which is essential for the multi-dimensional model of appreciation they describe, namely the question of whether or not it makes conceptual sense to group the sensitivity to different types of goodness together. They pointed out that empirical research is needed to determine if they "do in fact cluster together in individuals" (p. 538), that is, if a person who is sensitive to physical beauty also has the ability to recognize and take pleasure in skills or talent, and virtue or moral goodness. Alternatively, it may be that people high in *appreciation of beauty and excellence* rather have a specific sensitivity to one of these three types of goodness. The VIA-IS *appreciation of beauty and excellence* (ABE) subscale (Peterson & Seligman, 2004), which comprises items relating to beauty in the physical world, and to moral goodness points this direction, as only a total score is computed. However, none of the 10 items of the ABE addresses the sensitivity to skills and talents. A distinct measure of this sensibility would allow further examination of whether and which of the three kinds of appreciation might be grouped together. This question is not only of theoretical interest, but also has practical implications. If empirical

research shows that "multiple channels by which people can connect to excellence around themselves and create enriched and awe-filled lives" (Haidt & Keltner, 2004, p. 538) actually do exist, appreciation becomes accessible even to those who have little exposure to literature, classical music, or art museums. If furthermore the sensitivities to different types of goodness prove to be related, engaging emotionally in one of them might have an impact on the other two. And this, in turn, could lead to the development of new pedagogical curricula or Positive Psychology interventions.

Diessner et al. (2008) showed that the three subscales of their *Engagement with Beauty Scale* (EBS) were correlated, but distinct, thus giving first empirical evidence for the multi-dimensionality of appreciation. But their findings rely on one single questionnaire, and would need to be confirmed by a different type of measure. In fact, as both the ABE and the EBS are self-report questionnaires, they share the problems of a response pattern which might be influenced by social-desirability, or by intrapersonal intelligence (i.e., the knowledge people have of themselves). Therefore, an open question is, whether and to what extent a more objective measure correlates with self-report measures of appreciation. In addition, further statistical analyses are needed to determine if correlation patterns found within or among the self-report instruments can be reproduced with a more objective test.

Finally, the models of Haidt and Keltner (2004) and Diessner et al. (2008) are overlapping but not identical. Both models hypothesize a second-order factor of general sensitivity to beauty and goodness, and both models are three-dimensional; they share a dimension of artistic beauty, and a dimension of moral beauty or goodness. Additionally, *appreciation of beauty and excellence* posits a distinct skills and talent dimension, whereas *engagement with beauty* encompasses natural beauty as a third, separate dimension. These similarities and partial overlap, as well as the differences, raise the question of how the two models relate to each other.

## Aims of the research

Following these thoughts, the aim of our research was threefold. First, we aimed to develop a more objective (stimulus-based instead of self-report) instrument based on the structure of appreciation hypothesized by Haidt and Keltner (2004) to assess *appreciation of beauty and excellence*. This new instrument would not only address physical and moral beauty, but also skills and talents. Second, we intended to examine the convergent validity of this new instrument with the two existing ones. Finally, we meant to check the structure of the sensitivity to beauty and goodness that is to assess if one or both of the two models - developed by Haidt and Keltner (2004) and Diessner et al. (2008) can be empirically confirmed, or if a different or a combined model fits the data best. This last step should then allow an answer to the question of whether or not there are "multiple channels by which people can connect with beauty and excellence around them and create enriched and awe-filled lives" (Haidt & Keltner, 2004, p. 538).

## Study I: Development of the ABET

The aim of this first study was to (a) develop a stimulus-based test assessing the sensitivity to physical beauty, skills and talents, and virtue or moral goodness, (b) examine its psychometric properties (i.e., corrected item-total-correlations, exploratory factor analysis, and internal consistencies, and (c) use this newly created test to study whether, and to what extent, the three sensitivities are correlated.

### Method

*Participants*

The sample consisted of N = 246 German-speaking participants (172 women, 74 men) aged 18 to 79 years (M = 46.86; SD = 13.24). Education ranged from compulsory education (high school) to University degree, 55% of the participants were married, 45 % lived alone, and 79% were employed or self-employed. Volunteers were recruited through flyers, direct

emailing, announcements on Internet sites and short contributions about Positive Psychology in magazines.

*Materials and procedure*

Based on the structure of appreciation hypothesized by Haidt and Keltner (2004), a 30-item instrument called the Appreciation of Beauty and Excellence Test (ABET) was developed. The ABET comprises pictures, music excerpts, texts to read and texts to listen to, as well as video clips. The structure of appreciation, together with the ABET items are presented in Appendix 1.

According to Haidt and Keltner (2004), physical beauty encompasses visual and auditory beauty. Therefore paintings and musical excerpts (6 items each) were included in the ABET, together with short poems (6 items), which were read by professional actors. Music excerpts, paintings and poems were selected in order to be as diverse as possible. Other areas of physical beauty, such as natural beauty and sexual beauty, were not included, as it was expected that reproductions of paintings or recordings of music would elicit appreciation more easily and "naturally" in the context of an online survey than pictures of nature, or human bodies. Six short stories about people displaying moral goodness or moral beauty were selected from textbooks for ethics classes on college level, and adapted to the needs of the study. Some of these short stories were about "everyday moral goodness" whereas others described extreme situations (e.g., hiding Jewish people during World War II). Following Haidt and Keltner (2004), who described skills and talents as "non-aesthetic forms of excellence such as might be demonstrated by athletes or jugglers" (p. 539), three short video clips of persons displaying great artistic, athletic or acrobatic skills were chosen, together with three short texts describing brilliant persons with particular intellectual or professional talents.

These 30 ABET items were presented online. Each was to be rated on two 5-point Likert scales (ranging from 1 = not at all, to 5 = absolutely) indicating how much someone experienced "beauty" and "excellence". Correlations between these two ratings proved to be very high for the music, painting and lyric items, that is for items relating to goodness in the physical world (.79 to .86), high for the virtue and moral goodness items (.60) and medium for to the skills and talent items (.42). These correlations did not support Haidt and Keltner's (2004) assumption that goodness in the physical world would mainly elicit the experience of beauty, and goodness in the social world the experience of excellence. They rather suggested that the experiences of beauty and excellence were related to different degrees, depending on the nature of the respective stimulus: closely related for works of art or pieces of music, more loosely for moral goodness, and hardly for skills and talents. Language use probably explains this finding. By German word usage, "beauty" and "excellence" apply equally well to works of art, whereas for the description of moral goodness, the term "beauty" is much more common, and for skills or talents only the term "excellence" in use. Therefore, participants required to rate the "beauty" of an athletic, acrobatic, or intellectual skill might have concentrated on the beauty of the visual or musical aspects of the video-clips, rather than on the beauty of the skill or talent itself. Or participants asked to indicate the "beauty" and "excellence" experienced while listening to a piece of music might not have perceived the nuance between these two terms. It was therefore decided to retain only one rating per item, namely the one which corresponds best to the common parlance of native German speakers.

**Results**

*Corrected item-total correlations and exploratory factor analysis*

Corrected item-to-total correlations (CITCs) ranged from .26 to .76, and the median of all corrected item-total correlations was .53. Different cut-off values for inclusion or deletion of items are reported in the literature. For example, Bearden, Hardesty and Rose (2001) used

a decision rule of CITCs greater than .35 to retain items. Netemeyer, Bearden, and Sharma (2003) recommended CITCs in the .50 - .80 range for retention. Six of the ABET items did not meet the .35 criterion; eight had a CITC below .50. But only two, namely ABET 6 and ABET 30, did not have a CITC higher than the item-total correlation (ITC), a relative criterion which is more meaningful than any absolute cut-off value.

A first principal components analysis using oblimin rotation was computed for the 30 ABET items. Results not only supported the a priori assumption that the ABET would assess five different types of sensitivities to the beautiful and the good, but also confirmed what the corrected item-to-total correlations had already indicated: all items of the three artistic and of the two non-aesthetic goodness subscales loaded on separate factors, except for ABET6 and ABET 30. Table 1 presents the results of a second oblimin rotated principal component analysis which was carried out after deletion of these two items. As can be seen, two items had double-loadings (differences < .05), and the total variance explained by the five factors was 53.91. Correlations between the components ranged from -.27 (music and moral factors) to .24 (lyric and moral factors).

*Descriptive statistics and scale intercorrelations*

In a next step, mean scores, standard deviations, skewness and kurtosis, as well as reliabilities were computed for all ABET subscales and for the ABET total score (see Table 2). Table 2 shows that skewness and kurtosis indicated normal distribution of all scales, except for ABET Talent, which was peaked ($K > 1.96$). Standard deviations ranged from .61 (ABET Total) to 1.00 (ABET Moral). The ABET scales yielded sufficient to high internal consistencies, with alphas between.65 (ABET Talent) to .88 (ABET Art and ABET Total). Subscale means went from 2.26 (ABET Moral) to 3.91 (ABET Talent). Participants seemed to experience beauty or excellence mostly when listening to music, looking at paintings, or viewing the talent-excellence of another person, and less so when listening to poems or

Table 1. *Oblimin five-factor rotated solution for the ABET (principal component analysis).*

| | factors | | | | | |
|---|---|---|---|---|---|---|
| | painting | moral | talent | lyric | music | |
| eigenvalue | 7.00 | 2.84 | 2.56 | 1.46 | 1.24 | |
| variance explained | 24.98 | 10.15 | 9.14 | 5.22 | 4.42 | $h^2$ |
| ABET Music | | | | | | |
| 3 | .23 | .11 | .12 | .33 | **-.73** | .60 |
| 13 | .25 | .18 | .25 | .13 | **-.63** | .42 |
| 16 | .40 | .21 | .39 | .15 | **-.60** | .48 |
| 21 | .55 | .20 | .30 | .31 | **-.63** | .60 |
| 26 | .16 | .21 | **.39** | -.19 | **-.36** | .30 |
| ABET Painting | | | | | | |
| 2 | **.38** | .17 | -.04 | .09 | **-.39** | .27 |
| 9 | **.63** | .15 | .04 | .02 | -.41 | .49 |
| 12 | **.71** | .06 | .14 | .07 | -.38 | .55 |
| 18 | **.79** | .16 | .21 | .29 | -.33 | .66 |
| 23 | **.74** | .18 | .12 | .47 | -.11 | .66 |
| 29 | **.81** | .17 | .27 | .25 | -.10 | .71 |
| ABET Lyric | | | | | | |
| 5 | .18 | .27 | .08 | **.74** | -.29 | .60 |
| 8 | .14 | .20 | -.18 | **.76** | -.07 | .60 |
| 11 | .19 | .22 | .10 | **.77** | -.12 | .61 |
| 19 | .53 | .37 | .17 | **.67** | -.30 | .65 |
| 24 | .54 | .31 | .06 | **.60** | -.39 | .59 |
| 28 | .44 | .43 | -.07 | **.57** | -.10 | .52 |
| ABET Talent | | | | | | |
| 1 | .06 | .09 | **.40** | -.01 | -.33 | .22 |
| 10 | .01 | .10 | **.59** | .08 | -.14 | .37 |
| 15 | .09 | .14 | **.67** | -.07 | -.19 | .46 |
| 22 | .21 | .23 | **.68** | -.03 | -.08 | .50 |
| 27 | .22 | .07 | **.73** | -.02 | -.19 | .55 |
| ABET Moral | | | | | | |
| 4 | -.07 | **.63** | -.05 | .18 | -.12 | .46 |
| 7 | -.04 | **.61** | .26 | .15 | -.39 | .51 |
| 14 | .11 | **.80** | .05 | .23 | .00 | .66 |
| 17 | .22 | **.78** | .25 | .13 | -.06 | .65 |
| 20 | .23 | **.79** | .16 | .24 | -.20 | .64 |
| 25 | .20 | **.86** | .20 | .23 | -.17 | .75 |

*Note.* N = 246. **Bold** indicates the highest factor loadings of the scales.

Table 2. *Descriptive statistics, reliabilities, correlations with age and sex, and intercorrelations of the ABET scales.*

| | Descriptive statistics | | | | Reliability | Demographics | | Scale intercorrelations | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *S* | *K* | α | Age | Sex | Music | Painting | Lyric | Art | Talent | Moral |
| ABET | | | | | | | | | | | | | |
| Music | 3.77 | .81 | -.87 | 1.14 | .71 | .00 | .09 | | | | | | |
| Painting | 3.22 | .92 | -.24 | -.56 | .81 | .16* | -.07 | .50*** | | | | | |
| Lyric | 2.31 | .92 | .37 | -.54 | .83 | .06 | -.05 | .41*** | .49*** | | | | |
| Art | 3.06 | .71 | -.20 | -.38 | .88 | .10 | -.02 | .75[a] | .84[a] | .81[a] | | | |
| Talent | 3.91 | .75 | -1.26 | 2.13 | .65 | .07 | .04 | .38*** | .25*** | .07 | .28*** | | |
| Moral | 2.26 | 1.00 | .52 | -.66 | .85 | -.02 | -.02 | .27*** | .22*** | .41*** | .38*** | .23*** | |
| Total | 3.04 | .61 | -.19 | -.15 | .88 | .08 | -.01 | .72[a] | .74[a] | .74[a] | .91[a] | .50[a] | .67[a] |

*Note.* N = 246 (men = 74, women = 172). *S* = skewness, *K* = kurtosis, α = Cronbach's α, Sex (1 = male; 2 = female).
***$p < .001$.
[a] = correlations of subscales with the corresponding total score are not tested for significance.

reading about moral goodness. The mean of ABET Total (3.04) was slightly above the midpoint of the scale (2.5). Correlations with demographics were generally small in size; only the correlation between age and appreciation of paintings (.16) was statistically significant. The scale inter-correlations went from .07 (appreciation of skills and talents with appreciation of lyric) to .50 (appreciation of music with appreciation of paintings).

**Discussion**

The main result of this first study was that the responsiveness to different types of goodness, could be differentiated, which suggests that appreciation is not uni-dimensional, but consists of different sensitivities which may be grouped together on a higher level. This result is of interest, because it supports the main assumption of both the *appreciation* and the *engagement model*. Furthermore, it confirms the findings of Diessner et al. (2008), who showed that the three subscales of their EBS resolved, in a principal component analysis, into distinct factors, but reported correlations between these factors ranging from .48 to .68.

In this sample, the reliabilities of the ABET subscales were satisfying. . Two items did not meet the criterion of the CITC being lower than the ITCs and did not load on their respective factors. The first, ABET6, was an excerpt of modern, nearly experimental Swiss folk music, which went with ABET Lyric and loaded on the lyric factor, indicating that this type of music is less related to the intuitive, emotional experience typical for classical, jazz and pop music than to the more intellectual, abstract appreciation of poetry. The second, ABET30 was a video clip showing the astounding skills of a virtuoso violinist. The fact that the skills he displayed were related to music probably lead to correlations with appreciation of music: a person watching this video-clip might focus on its "music aspect", instead of its "skills aspect".

We decided to delete these two items for all subsequent analyses, in order to find an optimal balance between both content validity (i.e., presenting the participants with as different examples as possible) and homogeneity of the scales.

## Study 2: Structure of Appreciation

The main aim of study 2 was to examine the models proposed by Haidt and Keltner (2004), and Diessner et al. (2008) using structural equation modeling. Additionally, we planned to confirm and further refine the findings of the first study with a larger and more heterogeneous sample. Finally, we intended to correlate the ABET with two existing measures of appreciation, the EBS (Diessner et al., 2008) and the ABE subscale of the VIA-IS (Peterson & Seligman, 2005) to examine the relationships between these self-ratings measures and the newly created test (concurrent validity). We expected medium to high positive correlations between the EBS and the ABE subscale, and predicted lower but still significant correlations between these two self-report instruments and the ABET, which is a stimulus-based test.

### Methods

*Participants*

The sample consisted of 439 German-speaking adult volunteers (276 women, 163 men) aged 18 to 86 years (M = 42.21; SD = 12.90). With respect to their highest educational achievement, 5% of the participants indicated to have achieved compulsory education, 38% an apprenticeship, 12% a baccalaureate, and 45% a University degree; 58 % indicated being married or living with their partner, 42 % lived alone (single, divorced, or widowed). In regard to employment, 75% reported to be working, and 25% to be presently unemployed, studying, or retired.

*Instruments*

Participants completed the ABET; following the analyses conducted in study 1, only 28 items were retained for this second study, and only one "beauty" or "excellence" score per item was taken into account. In this sample, reliabilities ranged from .69 (ABET Talent) to .88 (ABET Art and Total).

The *Values in Action Inventory of Strengths* (*VIA-IS*; Peterson, Park, & Seligman, 2005) consists of 240 items for the self-assessment of the 24 character strengths (10 items per strength) included in the classification of Peterson and Seligman (2004). Participants filled in the whole questionnaire, but only the ABE subscale, which is concerned with both aesthetic and non-aesthetic goodness, and consists of items alluding to physical beauty (art and surroundings), as well as virtue or moral goodness, was considered within the scope of the study. The VIA-IS uses a 5-point rating format (from *very much like me* to *very much unlike me*). A sample item is: "I experience deep emotions when I see beautiful things" (ABE). The German adaptation of the VIA-IS (Ruch et al., 2010) was already validated in a variety of contexts (e.g., Güsewell & Ruch, 2012; Harzer & Ruch, in press a, b; Müller & Ruch, 2011). Ruch et al. (2010) reported an internal consistency of .73 for the ABE subscale which, in our sample, had an alpha of .72.

The *Engagement with Beauty Scale (EBS;* Diessner et al., 2008) is the first standalone instrument concerned with the sensitivity to different types of the beautiful and the good. It consists of 14 items for the self-assessment of Engagement with Natural Beauty (4 items), Engagement with Artistic Beauty (4 items) and Engagement with Moral Beauty (6 items). The EBS offers a total score and scores for each of the three subscales. It uses a 5–point rating format ranging from *very much unlike me* to *very much like me.* A sample item is "When perceiving beauty in nature I feel changes

in my body, such as a lump in my throat, an expansion in my chest, faster heartbeat, or other bodily responses" (Natural Beauty). Diessner et al. (2008) report a Cronbach α of .90 for the total score and alphas ranging from .80 to .87 for the subscales. In this study we used the German version by Dachs and Diessner (2009), which was tested with a sample of N = 69 participants. According to Dachs and Diessner (2009), they could reproduce the initial factor structure in the German version, and reliabilities ranged from .94 (EBS total score) to .85 (Natural Beauty and Artistic Beauty subscales). In our sample, reliabilities went from .71 (Natural), to .81 (Artistic and Moral), with α = .85 for the Total score.

*Procedure*

Participants took the ABET, the whole VIA-IS and the EBS on a website which was created specifically for the purpose of this research in spring 2010. The study was promoted by means of short newspaper and magazine contributions, by flyers and posters, and by contacting directly specific population groups (e.g., retired persons, young mothers with children, different cultural and athletic societies) in order to get a heterogeneous sample. Respondents registered on the website from their own personal computers; they were not paid for participating, but took part in a raffle and received standardized feedback about their character strengths profile. Only participants who had completed the whole survey (67% of the N=655 who started filling it in) were included in the sample[9]. As the online survey did not allow skipping any questions, the data set contained no missing data.

[9] The N = 216 participants who did not complete the survey were on average slightly older (M = 44.80) than those who did (M = 42.21). Furthermore, the proportion of men was lower in this group (13.9% vs. 27.1%). With respect to employment, comparison between the two sub-groups is impossible, as most of those who dropped out did not come across the socio-demographic questions.

*Data analysis*

A structural equation modeling analysis using SPSS Amos (Version 18; Arbuckle, 2007) was carried out to examine the structure of appreciation. All models included in this analysis met the following theoretical assumptions: (a) appreciation (or engagement) is a general sensitivity for goodness in the physical and social worlds; (b) appreciation (or engagement) is multi-dimensional, and encompasses at least two dimensions, aesthetic and non-aestethic goodness, but might possibly comprise three dimensions; (c) these two or three dimensions are related, but distinct. Additionally, all models were tested with a method factor representing the systematic variance introduced by the new type of measurement instrument developed (i.e., stimulus-based test instead of self-report questionnaire): the ABE and the EBS require participants to give a reflected assessment of their reactions to beauty and goodness, whereas the ABET asks for a spontaneous assessment of their actual reactions to different types of stimuli.

The following three models were tested: (1) *two-dimensional appreciation model*, a two-dimensional variant of Haidt and Keltner's (2004) model, comprising the sensitivity for goodness in the physical world on the one hand, and the sensitivity for goodness in the social world on the other hand; (2) *three-dimensional appreciation model*, corresponding to the three dimensions hypothesized by Haidt and Keltner (2004), namely, physical beauty, skill or talent, and virtue or moral goodness; (3) *engagement model,* encompassing the three dimensions Diessner et al.(2008) included in their model, that is natural, artistic, and moral beauty.

The ABE subscale of the VIA-IS comprises no subscales. Nonetheless, its ten items address different types of goodness and can therefore be grouped content wise. Haidt and Keltner (2001) discussed the fact that an ideal self-report instrument

assessing the emotional responsiveness to various kinds of beauty and excellence "should specify the various potential sub-types of beauty and excellence, and then offer several potential items within each subtype" (p. 10). They proposed a list of such sub-types, together with 22 corresponding items, eight of which were actually included in the VIA, together with two additional ones. Following Haidt and Keltner's (2001) tentative classification, these ten items relate to appreciation of one's surroundings, appreciation of art, and appreciation of non-aesthetic goodness. An exploratory oblimin rotated principal component analysis on item level yielded a three-factor solution which came close to Haidt and Keltner's (2001) a-priori classification and suggested to create the following three clusters for the purpose of the structural equation modeling analysis: ABE Environment (ABE 89, 137, 185; $\alpha = .62$), ABE Art (ABE 161, 209, 233; $\alpha = .71$), and ABE Awe (ABE 17, 41, 65, 113; $\alpha = .65$).

The fit of the three alternative models was tested using the p-value of the chi-square ($\chi^2$; Hair, Anderson, Tatham, & Black, 2006), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), and the root-mean-square error of approximation (RMSEA; Hu & Bentler, 1998) as criteria. A non-significant p-value of chi-square ($\chi^2$) indicates a good fit. As the chi-square statistic is very sensitive to sample size (Hair et. al., 2006), a significant value is to be expected for large sample sizes. Therefore, additional indices should always be taken into account when evaluating the fit of a model (Bentler, 1990; Hu & Bentler, 1999). Widely used alternatives include the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), and the root-mean-square error of approximation (RMSEA). A GFI and an AGFI higher or equal .90 indicate a good-fitting model, a GFI and an AGFI higher or equal .95 an excellent-fitting model. For the RMSEA, values equal to or lower than .08 can be interpreted as an acceptable fit.

## Results

*Preliminary analyses*

In this sample, skewness and kurtosis indicated normal distribution of all scales. Correlations with demographics were small in size, yet statistically significant in some cases, due to the number of participants. Women scored higher on the ABE ($r$ = .13) than men, showed greater sensitivity to music and examples of virtue and moral goodness (ABET Music, $r$ = .13; ABET Moral, $r$ = .11), and greater engagement with natural and moral beauty (EBS Natural, $r$ = .19; EBS Moral, $r$ = .17). Age was related positively to appreciation of paintings and of lyric (ABET Painting, $r$ = .16; ABET Lyric, $r$ = .10), and to engagement with artistic beauty (EBS Art, $r$ = .16). Therefore, all subsequent correlational analyses controlled for a potential impact of these demographic variables.

*Scale inter-correlations and concurrent validity*

Correlations among the ABET, EBS, and ABE subscales are shown in Table 3. With respect to the scale intercorrelations, three questions were of interest. First, whether scales concerning similar contents would show higher correlations among each other, than with other scales. Results showed that Engagement with artistic beauty (EBS Artistic) had its highest correlation with appreciation of art (ABET Art), and that engagement with moral beauty (EBS Moral) had its highest correlation with appreciation of virtue and moral goodness (ABET Moral). Likewise, the three VIA clusters had their highest correlations with the three corresponding EBS subscales (.49 to .51). It can therefore be assumed that related subscales actually measure related constructs. The second question we intended to examine, was whether the influence of the two methods would become apparent, that is whether the scale-intercorrelations would be higher within the methods, than between. And indeed, the correlations of the

Table 3. *Correlations and covariances of the ABET, EBS, and ABE subscales.*

| | ABET Art | ABET Talent | ABET Moral | ABET Total | ABE Environ | ABE Art | ABE Awe | ABE Total | EBS Natural | EBS Artistic | EBS Moral | EBS Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABET Art | | .16 | .20 | .35 | .06 | .20 | .06 | .10 | .35 | 1.40 | .75 | 2.50 |
| ABET Talent | .29*** | | .12 | .24 | .03 | -.02 | .07 | .03 | .43 | .44 | 1.06 | 1.93 |
| ABET Moral | .30*** | .15** | | .34 | .11 | .08 | .13 | .11 | .65 | .82 | 2.11 | 3.58 |
| ABET Total | .90[a] | .52[a] | .61[a] | | .06 | .14 | .08 | .09 | .43 | 1.11 | 1.09 | 2.63 |
| ABE Environ | .12** | .05 | .15** | .16** | | .13 | .19 | .24 | 1.27 | .94 | 1.18 | 3.39 |
| ABE Art | .39*** | -.02 | .12*** | .32*** | .26*** | | .09 | .26 | .24 | 1.82 | .81 | 2.87 |
| ABE Awe | .14** | .14** | .20*** | .21*** | .45*** | .20*** | | .24 | 1.22 | .98 | 1.92 | 4.12 |
| ABE Total | .30*** | .08 | .21*** | .32*** | .74[a] | .68[a] | .77[a] | | .94 | 1.22 | 1.36 | 3.52 |
| EBS Natural | .13** | .13** | .16** | .18*** | .49*** | .10* | .50*** | .49*** | | 7.42 | 10.83 | 32.64 |
| EBS Artistic | .44*** | .11* | .18*** | .41*** | .30*** | .51*** | .35*** | .54*** | .42*** | | 11.26 | 40.05 |
| EBS Moral | .18*** | .21*** | .34*** | .31*** | .28*** | .18*** | .49*** | .44*** | .45*** | .41*** | | 60.04 |
| EBS Total | .32*** | .20*** | .31*** | .39*** | .43*** | .34*** | .57*** | .61*** | .74[a] | .76[a] | .85[a] | |

*Note.* $N = 439$ (men = 163, women = 276). Partial correlations, controlled for age and gender are displayed below, covariances above the diagonal.

*$p < .05$. **$p < .01$. ***$p < .001$.

[a] = correlations of subscales with the corresponding total score are not tested for significance.

ABET scales with EBS Total and ABE were numerically lower than the correlations of the EBS scales with ABE, as expected (test versus self-report questionnaires). And finally, we wanted to see how appreciation of beauty and excellence as measured with the ABE subscale of the VIA-IS would be correlated with each of the three ABET subscales. Table 3 shows that ABE mainly went together with appreciation of physical beauty (ABET Art), to a lesser extent with appreciation of moral goodness (ABET Moral), and hardly with appreciation of skills and talents (ABET Talent).

*Correlations to relevant socio-demographic variables*

Correlations with five "appreciation-relevant" behaviors in everyday life were computed (convergent validity). It was expected that participants in an artistic profession (e.g., musician, painter, and architect) would display a significantly higher sensitivity to artistic goodness than other participants, which was partly confirmed (Bonferroni corrected significant correlations with ABE and EBS Artistic, but not with ABET Art).

Furthermore, it was hypothesized that the responsiveness to artistic goodness would correlate positively with the frequency of concert attendance, and the data supported this assumption (Bonferroni corrected significant correlations with ABET Art and EBS Artistic). Interestingly, higher scores on overall measures of the sensitivity to the beautiful were also were positively related to the frequency of concert attendance (Bonferroni corrected significant correlations with ABE and ABET Total), as if this type of leisure activity was not only linked to a specific sensitivity for beauty in the physical world, but also to a more general sensitivity to beauty and excellence.

Furthermore, we had expected that persons indicating that sport was their main leisure activity would be particularly sensitive to skills and talents (ABET Talent); that participants mentioning reading and literature as their favorite hobby would be

Table 4. *Fit of the different structural models.*

| Models | $\chi^2$ (N = 439) | *df* | *p* | RMSEA | GFI | AGFI |
|---|---|---|---|---|---|---|
| *2-dimensional appreciation* (Haidt & Keltner, 2004) | | | | | | |
| no method factor[a] | 312.0 | 26 | <.001 | .168 | .85 | .75 |
| with "test" method factor[a] | 262.9 | 24 | <.001 | .151 | .87 | .75 |
| *3-dimensional appreciation* (Haidt & Keltner, 2004) | | | | | | |
| no method factor | | | model failed to converge | | | |
| with "test" method factor | | | model failed to converge | | | |
| *3-dimensional engagement* (Diessner et al., 2008) | | | | | | |
| no method factor (em1) | 165.6 | 24 | <.001 | .119 | .92 | .85 |
| with "test" method factor (em2) | 103.1 | 22 | <.001 | .094 | .95 | .89 |
| with EBS covariances (em3) | 63.3 | 19 | <.001 | .075 | .97 | .92 |
| Difference between *engagement* models | | | | | | |
| $\Delta \chi^2_{(A)} = \chi^2_{(em1)} - \chi^2_{(em2)}$ | 62.5 | 2 | <.001 | | | |
| $\Delta \chi^2_{(B)} = \chi^2_{(em2)} - \chi^2_{(em3)}$ | 39.8 | 3 | <.001 | | | |

*Note.* N = 439. RMSEA = root-mean-square error of approximation; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index.
[a] = without second order factor.

especially responsive to the beauty of poems (ABET Lyric); and that those who spend most of their free time with family and friends would be highly responsive to goodness in the social world (ABET Moral or EBS Moral). However, these hypotheses were not confirmed.

*Structure of Appreciation of Beauty and Excellence*

Initial covariances of all subscales are displayed in Table 3 (Mueller & Hancock, 2008, p. 505). In a first step, each of the three models discussed in the method section was examined (Table 4). Table 4 shows that the appreciation model converged only without second order factor. However, as even this variant yielded an insufficient fit, the two-dimensional model was not considered any further. The three-dimensional appreciation model failed to converge, with and without second-order factor. Therefore, no fit indices are provided for this model. The comparatively best fit was observed for the engagement model.

The EBS and the ABE are both self-report questionnaires However, there is a major difference between these two instruments: whereas the EBS addresses actual emotions (i.e., a sense of awe, or wonder or excitement or admiration or upliftment), bodily feelings (i.e., a lump in one's throat, an expansion in one's chest, faster heart beat), or spiritual experiences (i.e., a sense of oneness, or being united with the universe, or a love of the entire world) related to the perception of beauty, the ABE is rather concerned with thoughts and cognitions (e.g., I'm always aware of, it's important to me, I see). The specific, emotional and bodily component of the EBS could have an impact on the rating-behavior of participants, and consequently, the residuals belonging to its three subscales might co-vary in a specific way. To examine this hypothesis, we allowed the error terms to correlate and run the model again. Following the introduction

of the covariances, all fit indices improved. As the difference between the Chi square values was highly significant, this model was finally retained (see Figure 2).

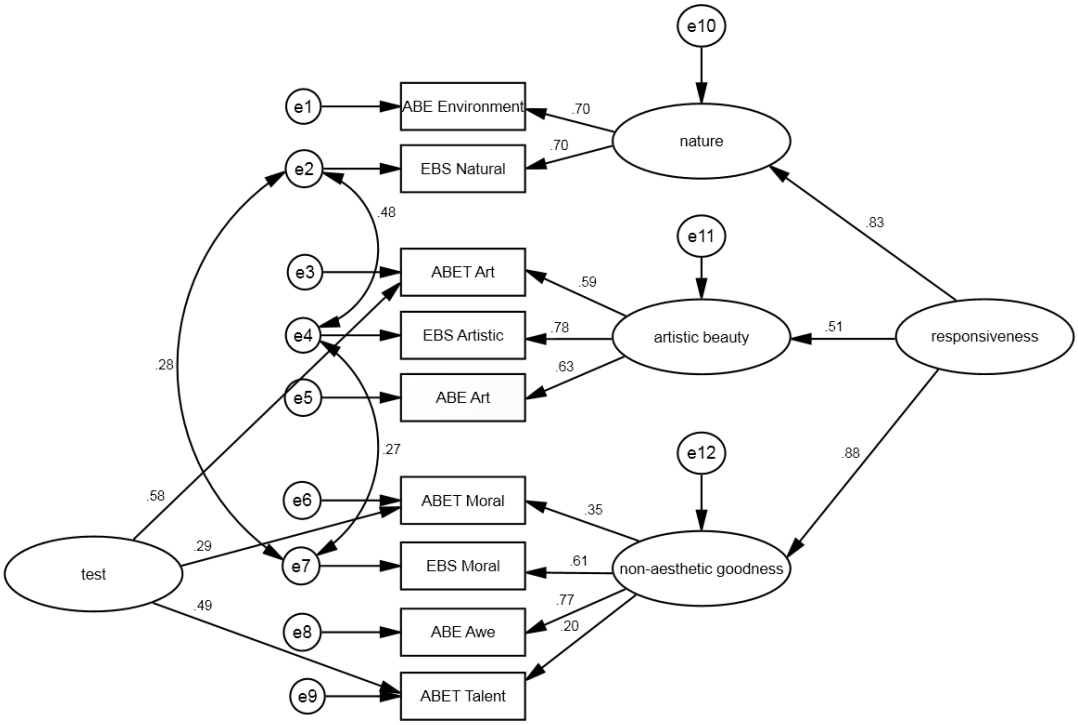


Figure 2. Final three-dimensional structural equation model of responsiveness, standardized solution.

*Note.* N = 439, no missings.

Preliminary analyses had shown significant correlations of some of the subscales with socio-demographic variables, mainly sex; therefore, the final model was computed separately for men and women. The table of critical ratios of differences among all pairs of free parameters was examined, and showed that men and women differed significantly only with respect to one single parameter, namely the loading of "ABE Moral" on "test", which was higher for women (.38) than for men (.06). Thus, future model testing should consider testing for invariance across gender. Nevertheless, the structural model was valid for both gender groups, and hence Figure 2 presents the results for the combined sample.

**Discussion**

The results of the structural equation modeling analysis confirmed the basic assumptions of both Haidt and Keltner (2004) and Diessner et al. (2008), namely that appreciation or engagement is a general sensitivity to beauty and goodness, which encompasses distinct, but related dimensions. The three-dimensional model which demonstrated the best fit in this study distinguished between the sensitivity for beauty in nature and surroundings, the sensitivity for artistic beauty, and the sensitivity for non-aesthetic goodness. At first glance, this structure corresponds to the three dimensions suggested by Diessner et al. (2008). On closer inspection, there is one notable difference between their *engagement model* and our resulting model, namely the fact that skills and talents are included, and that they cluster together with the sensitivity for moral goodness. This in turn supports Peterson and Seligman's idea of a specific sensitivity to the goodness in social world. Actually, our resulting model – although resembling the *engagement model* - is a combination of the *engagement* and the *appreciation model*. We chose to label it *responsiveness to the good and beautiful model*. The term "responsiveness" reflects the fact that both appreciation of and engagement with beauty go beyond the simple perception or awareness of the existence of beauty: they are conceived as reactions to beauty, appreciation as a cognitive reaction and engagement as an emotional reaction.

In terms of convergent validity, the ABET, the ABE and the EBS showed substantial positive correlations. The correlations of the ABET with the ABE and the EBS proved to be lower than the correlations between ABE and EBS, as was expected due to method variance, but still high enough to show that the two self-report questionnaires and the objective test seemed to measure the same characteristic. Diessner et al. (2008) wrote that "the overall high correlation between the ABE and the

EBS shows that they are similar enough to be used as alternate forms in future research" (p. 311). The ABET is not an alternative to the two existing questionnaires, but supplemental: it contributes to the understanding of the construct of appreciation by adding evidence from a different perspective. Both types of assessment (i.e., self-report questionnaire and test) yield results that fit the expected nomological net. The fact that musicians and other artists displayed a higher sensitivity to artistic goodness than other participants, and that the overall responsiveness to beauty and excellence correlated positively with the frequency of concert attendance adds important information. Further validation studies that substantiate the relations to other concepts and validity information are needed.

## General Discussion

This research tentatively adds a new three-factor model of the sensitivity to beauty and goodness to the two already existing ones, or rather shows that these two models can be integrated into a broader one. Our resulting model, which was labeled *responsiveness to the good and beautiful,* is not intended as a definitive one but should rather be considered as a first proposal and an invitation to ongoing research and debate.

The fact that *appreciation of beauty and excellence* and *engagement with beauty* could be combined in a broader model suggests these two constructs are closely related. The difference between appreciation and engagement mainly lies in the degree of emotional involvement of the observer. Whereas Haidt and Keltner (2004) assume that beauty elicits awe and awe-related emotions "in the strongest cases" (p. 537), Diessner et al. (2008) posit that there is no engagement without deep emotional involvement of the observer. This means that appreciation without engagement is conceivable, but engagement without appreciation is not. We therefore conceive *responsiveness to the*

*good and beautiful* as a continuum, stretching from cognitive *appreciation* to deep *engagement*, with all imaginable intermediate degrees of emotional involvement.

Haidt and Keltner (2004) raised the question, "are there multiple channels by which to connect with beauty and excellence[?]" (p. 538). Our findings definitively give an answer to this question: *responsiveness to the good and the beautifu*l is a general sensitivity to beauty and goodness, which encompasses distinct, but related dimensions. Within the overall frame of responsiveness, different combinations of these more specific dimensions do exist. Some individuals may be particularly sensitive to beauty of music, and less to other types of artistic beauty; others may have a strong sensitivity to moral excellence, and natural beauty, but not at all to human-made objects of art. The fact, that *responsiveness* is multi-dimensional raises the question, whether typical "responsiveness-profiles" can be ascertained for specific professions. For example, musicians, athletes, or priests might show a specific responsiveness to one or several types of goodness. In fact, our results point in this direction: persons indicating they have an artistic profession displayed higher levels of sensitivity to artistic beauty than other participants. Further research on this topic is needed.

Each of the three instruments included in this research assessed the sensitivity to some of the different types of beauty and goodness comprised in Haidt and Keltner's (2004) and Diessner et al.'s (2008) models, but none assessed them all. Whereas the sensitivity to virtue and moral goodness was measured by all three instruments, only the ABET was concerned with the sensitivity to skills and talents, and only self-report questionnaires (ABE and EBS) with the sensitivity to nature and surroundings. It will therefore be necessary to conceive one single instrument, taking into account all types of goodness, in order to check if the findings of this research can be confirmed. A fruitful next step will be the development of an even more comprehensive instrument

measuring responsiveness to the good and beautiful. This instrument will include other areas of beauty and goodness (such as the beauty of human bodies or of abstract patterns in nature), and would incorporate these aspects into the existing three dimensions.

The ABET, which was created for the purpose of this research, showed good reliability, as well as convergent validity, and can therefore be recommended for further research. Nevertheless, some limitations of this instrument need to be mentioned. Firstly, the stimuli of the ABET are linked to the cultural context in which the research took place. Art, but also ideas about what is excellent may always be bound to a culture, a society, a religious, philosophical and historical background. Therefore, the ABET aims not at being a culture-free, or cross-cultural appreciation test. Secondly, in order to keep the length of the ABET within a reasonable range, we had to reduce on the number of items in pre-studies. We tried to present the participants with an item-pool as diverse as possible, but cannot exclude that somebody's musical, or literary, or pictorial preferences were not addressed. Thirdly, the question is, whether an emotional response to beauty or excellence can be elicited several times in straight succession. If the task is not too unusual for pictures - the visitor of a painting exhibition usually contemplates even more numerous paintings – it is a difficult one for a series of short stories describing acts of moral goodness. The first story will probably elicit a strong emotional reaction, but the following could have less impact. And finally, if an online-survey is perfect for any type of artistic beauty items, it is less suitable for items relating to the beauty of nature, skills or talents, and moral goodness. Therefore, one challenge for future research might be to conceive study designs which create more "real-life" conditions, specifically with respect to nature, which is missing in the ABET.

Another limitation of our research is related to the fact that the whole survey took about one hour and a half to be filled in. It may therefore be assumed that only participants really interested in the topic and somewhat sensitive to beauty and excellence went on until the very end (i.e., self-selection of the participants). Furthermore, although we tried to make our survey as user-friendly as possible, some interested participants may have given up because they were faced with technical challenges they could not overcome. Therefore, although our sample was well balanced with respect to age, education, and occupational status, it is possible that it was non-representative with respect to other characteristics, and that this difference could have influenced the results.

Our research showed that participants' ratings of the beauty or excellence items not only depended on their sensitivity to artistic beauty, to the display of outstanding skills and talents, or to moral beauty, but also on the very specific contents each of these three sensitivities applied to. This idea is borrowed from Jaeger's (1984) model of intelligence, which crosses four operations with three classes of contents on which these operations apply. Our research highlights how difficult it is to separate a specific sensitivity from the content on which it applies. In the ABET Talent scale, participants gave different ratings to excellence in artistic or athletic domains compared to intellectual or moral domains. Whereas the former elicited both the experience of beauty and excellence, the latter elicited only the experience of excellence. There is no "absolute" or "content-free" appreciation of outstanding skills or talents, and the sensitivity to distinct types of skills and talents (e.g., intellectual, athletic, musical) may well be differently pronounced in one person. One possible way to overcome the above-mentioned difficulty could be a more directive test-instruction, telling the participants

on which aspect of the items to focus: either the excellence aspect, or the auditory or visual beauty aspect, or even both, but in a separate rating.

As an alternative, a closer look at the relations between different types of excellence and the emotions they elicit might allow a better understanding of possible distinctions between different types of goodness in the social world. Haidt and Keltner (2004) view appreciation as "[…] *emotional* responsiveness, the tendency to experience at least subtle self-transcendent emotions" (p. 538), and assume that different kinds of goodness produce "distinct awe-related emotions" (p. 538) in observers: beauty elicits awe, skill elicits admiration, and virtue elicits the emotion of moral elevation. Diessner (personal communication, July 16, 2010) agrees with this idea, when he writes:

> Based on Haidt's work, the main difference between moral beauty and moral excellence, AND non-moral excellence (skills & talents) would be that moral beauty/ excellence arouses elevation (and thus a desire to be a better person and help others), and that non-moral excellence (skills/talents) arouses admiration (with no concomitant desire to become a better person or help others).

Algoe and Haidt (2009) studied the *other praising family of emotions*, a group of emotions which arise from other's exemplary actions (i.e., gratitude, admiration, and elevation. They showed that each of these emotions not only had specific elicitors, but was also accompanied by typical physical sensations, and lead to unique motivational, or relationship consequences. These findings suggest that further research on *responsiveness to the good and beautiful,* might benefit from a focus on physical sensations, motivations, and relationship consequences, additionally to self-reports, or ratings of beauty and excellence experienced.

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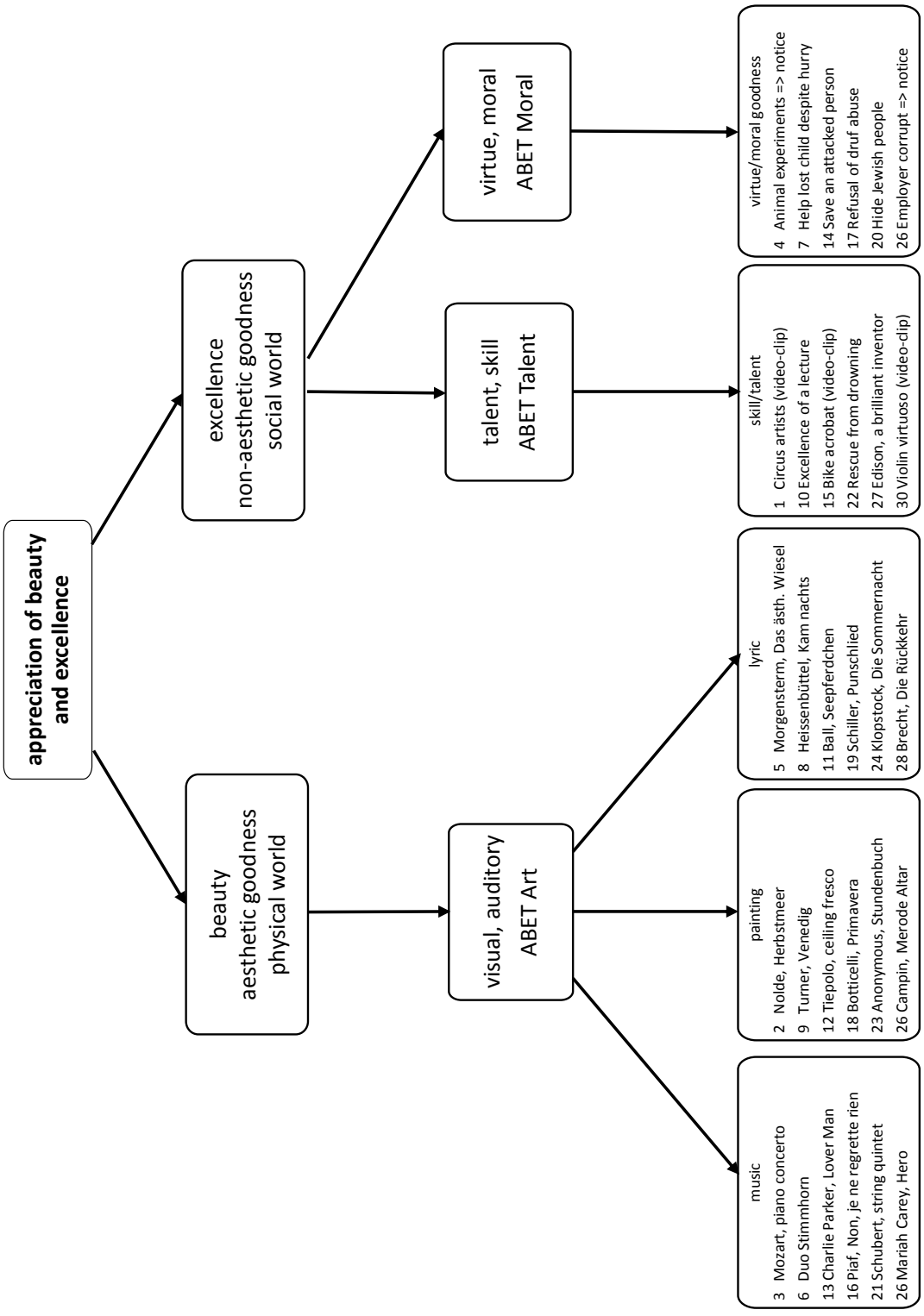
*Appendix A.* Structure of Appreciation of Beauty and Excellence (Haidt & Keltner, 2004) and items of ABET.



*Appendix B.* Unstandardized, standardized regression weights, and significance levels for Model

| | *Unstandardized* | *Standardized* | *p* |
|---|---|---|---|
| Measurement model | | | |
| ABE Environment ⇦ nature | 1.000 | .704 | Na |
| EBS Natural ⇦ nature | 5.307 | .703 | *** |
| ABET Art ⇦ artistic beauty | 1.000 | .587 | Na |
| EBS Artistic ⇦ artistic beauty | 8.749 | .783 | *** |
| ABE Art ⇦ artistic beauty | 1.217 | .627 | *** |
| ABET Moral ⇦ non-aesthetic goodness | 1.000 | .349 | Na |
| EBS Moral ⇦ non-aesthetic goodness | 9.853 | .609 | *** |
| ABE Awe ⇦ non-aesthetic goodness | 1.316 | .772 | *** |
| ABET Talent ⇦ non-aesthetic goodness | .474 | .202 | *** |
| ABET Art ⇦ test | 1.000 | .583 | Na |
| ABET Talent ⇦ test | 1.000 | .487 | Na |
| ABET Moral ⇦ test | .722 | .288 | *** |
| Covariances | | | |
| e2 ⇔ e7 | | .282 | *** |
| e4 ⇔ e7 | | .273 | *** |
| e2 ⇔ e4 | | .480 | *** |
| *Structural Model* | | | |
| artistic beauty ⇦ responsiveness | .533 | .506 | *** |
| non-aesthetic goodness ⇦ responsiveness | .806 | .881 | *** |
| nature ⇦ responsiveness | 1.000 | .835 | Na |

*Note.* $N$ = 439, no missings.

# PART III – Are musicians particularly sensitive to beauty and goodness?

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**Abstract**

The main purpose of this research was to further validate the characteristic *responsiveness to the good and beautiful* by investigating its links with different degrees of involvement in musical practice, and with three art-relevant personality constructs. Participants (125 professional musicians working in various fields, 125 amateur musicians, and 125 non-musicians) filled in the *Values in Action Inventory of Strengths* (*VIA-IS*; Peterson, Park, & Seligman, 2005), the *Engagement with Beauty Scale (EBS;* Diessner, Solom, Frost, Parsons, & Davidson, 2008), the *Appreciation of Beauty and Excellence Test (ABET;* Güsewell & Ruch, 2012a), *the Sensation Seeking Scale Form V (SSS-V;* Zuckerman, 1994), the *Tellegen Absorption Scale (TAS;* Tellegen & Atkinson, 1974), and the *Dispositional Positive Emotion Scale* (*DPES*; Shiota, Keltner, & John, 2006). Overall, *responsiveness* proved to be related to the degree of involvement in musical practice. However, professional musicians displayed distinct profiles depending on their main occupational activity: whereas music teachers and orchestra musicians showed a specific sensitivity to artistic beauty, soloists evidenced an overall high sensitivity to all types of beauty and goodness. Furthermore, results showed that the *responsiveness* dimensions correlated in a theoretically meaningful manner with dispositional awe, absorption, and experience seeking.

*Keywords*: appreciation of beauty and excellence, engagement with beauty, responsiveness to the good and beautiful, personality of musicians

## Introduction

During the last decade, two models of the sensitivity to beauty and goodness were proposed within the context of positive psychology: the *appreciation of beauty and excellence* model (Haidt & Keltner, 2004), and the *engagement with beauty* model (Diessner, Solom, Frost, Parsons, & Davidson, 2008). Both models assume the sensitivity to beauty in the physical world to be linked with the sensitivity to goodness or excellence in the social world, and hypothesize a second-order factor of general sensitivity to beauty and goodness. To examine whether one or both of these models could be empirically confirmed, Güsewell and Ruch (2012a) conducted a structural equation modeling analysis in which they not only included the two already existing self-report instruments, namely the *Appreciation of Beauty and Excellence* (ABE) scale of the VIA-IS (Peterson, Park, & Seligman, 2005), and the *Engagement with Beauty Scale* (*EBS*; Diessner et al., 2008), but also a newly-developed, stimulus-based instrument, the *Appreciation of Beauty and Excellence Test* (*ABET*; Güsewell & Ruch, 2012a). The resulting model, which integrated the two existing ones, was labeled *responsiveness to the good and beautiful*. It was comprised of a second-order factor of general sensitivity to beauty and goodness, and three distinct, but related dimensions: responsiveness to nature and surroundings, responsiveness to artistic beauty, and responsiveness to non-aesthetic goodness.

### Aesthetics-relevant correlates of the sensitivity to beauty and goodness

Up to now, few correlates of the sensitivity to beauty and goodness have been studied. As an initial step, Güsewell and Ruch (2012b) investigated the link between *appreciation of beauty and excellence*, and the disposition to experience seven distinct positive emotions. They found *appreciation* to be mainly correlated with dispositional awe, and to a somewhat lesser extent with dispositional joy, and contentment, a result that is in line with Haidt and

Keltner's (2004) idea that *appreciation* is the tendency to "frequently experience awe and related emotions" (p. 537).

Addressing other characteristics known to be relevant for aesthetic responses and preferences, in order to more extensively map the sensitivity to beauty and goodness onto previously developed measures within a nomological net, is an important next step. Two personality characteristics might be of particular interest within the scope of such research: absorption and sensation seeking. Absorption is described as the disposition for "having episodes of 'total' attention" (Tellegen & Atkinson, 1974, p. 268) with "peak-experience-like quality" (Tellegen, 1992, p. 1). Previous studies showed that there is a positive correlation between absorption and the ability to enjoy music (Rhodes, David, & Comb, 1988), and between absorption and visual art preferences (Combs, Black, O'Donnell, & Pope, 1988). Absorption would thus be expected to correlate with the sensitivity to artistic beauty, and possibly with the sensitivity to nature, or to non-aesthetic goodness. A number of studies have found associations between sensation seeking and preferences in different aesthetic variables (Rawlings, Barrantes i Vidal, & Furnham, 2000; Zuckerman, 1994). Of its four components, thrill and adventure seeking (TAS) proved to be the least relevant and experience seeking (ES) the most relevant for art preferences; thus, for experience seeking, the highest numerical correlation with measures of the sensitivity to beauty and goodness would be expected.

**Link between artistic activities and the sensitivity to beauty and goodness**

In line with the idea that character strengths should lead to observable behavior in specific contexts, persons highly sensitive to beauty and goodness would be expected to engage in activities related to physical beauty or to non-aesthetic goodness. Empirical data support this idea within the art context. Riddle and Michel-Riddle (2007) studied male art therapists and art therapy students and established that their highest ranked character

strengths were curiosity and appreciation of beauty and excellence. Diessner et al. (2008) found that art and music students scored significantly higher on engagement with artistic beauty than education and psychology majors. Güsewell and Ruch (2012a) showed that being in an artistic profession (e.g., musician, painter, or architect) correlated positively and significantly with appreciation of beauty and excellence and engagement with artistic beauty.

However, none of these studies considered different degrees of involvement with the arts. Therefore, one open question is whether persons engaged in an artistic profession display higher scores on different measures of the sensitivity to beauty and goodness than persons engaged in corresponding artistic leisure activities, and if the latter individuals, in turn, score higher than persons who do not engage in such activities at all. A second open question is whether persons in an artistic profession display an overall high sensitivity to different types of beauty and goodness (i.e., natural or artistic beauty and non-aesthetic goodness), or whether they show a specific sensitivity to artistic beauty.

Musical practice lends itself as an ideal field to examine these two questions as it is not reserved for professionals, but rather is widespread among the large population, thus easily allowing for comparisons between professionals, amateurs, and non-musicians. Previous studies on the personalities of music students and professional musicians suggested that a specific "musical temperament" might exist (Kemp, 1982). However, they also pointed at the fact that musicians were far from being a homogeneous population: their personality characteristics varied according to the main instrument played (Cribb & Gregory, 1999; Kemp, 1982), the favored musical style (Gillespie & Myors, 2000; Wills, 1984), or the working context and main occupational activity (Langendörfer, 2008).

**Aims of the study**

The main purpose of the present study is to further validate the characteristic sensitivity to beauty and goodness by establishing its external validity (i.e., verifying whether

it correlates in a theoretically meaningful manner with well-studied characteristics relevant for aesthetic responses and preferences) and substantive validity (i.e., examining if and how the characteristic is linked to relevant behaviors or life outcomes). Within this general framework, four additional specific objectives were set.

Güsewell and Ruch (2012a) recently proposed a tentative model of the sensitivity to beauty and goodness that incorporated the two existing ones (i.e., *appreciation of beauty and excellence* and *engagement with beauty)* and was labeled *responsiveness to the good and beautiful.* The first objective of this study is to test whether this new model could be reproduced and thus confirmed in a new sample (i.e., generalizability).

The second objective concerns the link between the sensitivity to different types of beauty and goodness (i.e., artistic, natural, and non-aesthetic) and different aesthetics-relevant constructs: the disposition to experience positive emotions, in particular, awe, sensation seeking, and absorption.

Persons highly sensitive to beauty and goodness would be expected to engage in activities relating to, or relying on, this specific characteristic. Empirical data give support to the idea that musicians display a pronounced sensitivity to beauty and goodness, but call for further investigations. Consequently, the third objective is to examine whether persons involved in varying degrees of musical practice (i.e., professional musicians, amateur musicians, and non-musicians) show significant differences with respect to *responsiveness,* absorption, sensation seeking, and the disposition to experience awe.

Previous studies on the personalities of professional musicians suggested that a specific "musical temperament" might exist (Kemp 1982). However, the personality characteristics of subgroups of professional musicians seem to differ depending on their working context and main occupational activity (Langendörfer, 2008). Therefore, the fourth objective of this study is to examine whether three subgroups of professional musicians (i.e., music teachers,

orchestra musicians, and soloists) differ with regard to *responsiveness* and the three aesthetics-relevant constructs.

## Methods

### Participants

In total, 375 participants allotted to three subsamples took part in this research. Subsample 1 consisted of 125 German-speaking professional musicians (88 women, 37 men) aged 18 to 65 years ($M$ = 38.95; $SD$ = 10.96), out of whom 88% reported to be working, and 12% to be presently unemployed, studying, or retired. As this sample was assumed to differ from a random sample with respect to age, sex, and employment, Subsamples 2 (amateur musicians) and 3 (persons without musical practice) were randomly selected from an initial pool of N = 652 amateur musicians and non-musicians to match Subsample 1 as closely as possible with respect to these characteristics.

*Professional musicians*. Most of the musicians (83%) had a University degree[10]. Asked about their main instrument, 22% indicated string instruments, 36% woodwinds, 5% brass, 24% piano or organ, 16% voice, and 7% other instruments. With respect to music style, 63% primarily played classical music, 23% primarily jazz, and 14% were active in other areas or styles of music. Teaching was the principal source of income (46%), followed by playing in an orchestra (16%) and playing concerts as a soloist (12%); the remaining 26% either combined two or three of these activities or were otherwise engaged (e.g., composing, arranging, managing concert tours).

*Amateur musicians*. This sample consisted of persons musically active in their leisure time, playing an instrument, or singing. With respect to the highest (professional, not musical) achieved qualification, 3% indicated compulsory education, 30% professional

[10] In Switzerland, Germany, and Austria, music is studied at University, College, or Conservatory at a tertiary level.

apprenticeship or vocational training[11], 15% a high-school diploma[12], and 52% a University degree (i.e., Master's and PhD). Asked about their marital status, 50% reported being married or living with a partner and 50% living alone (single, divorced, or widowed).

*Individuals without musical practice*. This sample was composed of persons who neither played an instrument, nor sang. With respect to education, 5% achieved compulsory education, 34% an apprenticeship, 13% a baccalaureate, and 48% a University degree. Finally, 52 % indicated being married or living with a partner and 48% living alone.

**Instruments**

The *Values in Action Inventory of Strengths* (*VIA-IS*; Peterson et al., 2005) consists of 240 items on 5-point rating scales (from *very much like me* to *very much unlike me*) for the self-assessment of the 24 character strengths (10 items per strength). Participants completed the questionnaire in its entirety, but only the appreciation of beauty and excellence (ABE) subscale was considered (a sample item is: "I experience deep emotions when I see beautiful things"). Ruch et al. (2010) reported an internal consistency of .73 for the ABE subscale (.67 in our sample).

The *Engagement with Beauty Scale (EBS;* Diessner et al., 2008) consists of 14 items on 7–point scales (ranging from 1 = *very much unlike me* to 7 = *very much like me*) for the self-assessment of Engagement with Natural Beauty (4 items), Engagement with Artistic Beauty (4 items), and Engagement with Moral Beauty (6 items). A sample item is: "When perceiving beauty in nature I feel changes in my body, such as a lump in my throat, an expansion in my chest, faster heartbeat, or other bodily responses" (Natural Beauty). Dachs and Diessner (2009) reported reliabilities ranging from .85 (Natural and Artistic Beauty) to .90 (Moral Beauty) for their German version of the EBS. In the present sample, reliabilities went from .72 (Natural Beauty) to .80 (Moral Beauty).

[11] In Switzerland and Germany, usually after completion of compulsory schooling
[12] Matura in Switzerland, Abitur in Germany and Austria

The *Appreciation of Beauty and Excellence Test (ABET;* Güsewell & Ruch, 2012a) is a 30-item stimulus-based online test designed to assess the sensitivity to physical beauty (i.e., music, paintings, and poems), skills or talent, and virtue or moral goodness. The ABET is comprised of three subscales: ABET Art, ABET Talent, and ABET Moral. The extent to which each of the items (i.e., pictures, musical excerpts, texts, and video clips) elicits the experience of beauty or excellence is rated on a 5-point Likert scale (ranging from 1 = *not at all* to 5 = *absolutely*). Güsewell and Ruch (2012a) reported alphas ranging from .69 (ABET Talent) to .88 (ABET Moral). In this sample, reliabilities ranged from .63 (ABET Talent) to .86 (ABET Moral).

*The Sensation Seeking Scale Form V (SSS-V;* Zuckerman, 1994) is a 40-item self-administered questionnaire comprised of four subscales with 10 items each: thrill and adventure seeking (TAS), disinhibition (DIS), experience seeking (ES), and boredom susceptibility (BS). Each item consists of two statements such as (A) "I like 'wild' uninhibited parties" and (B) "I prefer quiet parties with good conversation"; respondents choose the statement that best suits their preference. Beauducel, Brocke, Strobel, and Strobel (1999) reported alphas ranging from .46 (BS) to .80 (TAS) for their German adaptation of the SSS-V. In our sample, alphas were from .40 (BS) to .76 (TAS).

The *Tellegen Absorption Scale (TAS;* Tellegen & Atkinson, 1974) in a German version by Angleitner, Langert, Schilling, and Spinath (1993) assesses whether someone is emotionally responsive to engaging sights and sounds. It consists of 34 true/false self-report items. A sample item is: "When I listen to music, I can get so caught up in it that I don't notice anything else." Johnson, Spinath, Krueger, Angleitner, and Riemann (2008) reported an internal consistency of .89; in our sample, the alpha was .80.

The *Dispositional Positive Emotion Scale* (*DPES*; Shiota, Keltner, & John, 2006) is an instrument for the self-assessment of the disposition to experience joy, contentment, pride,

love, compassion, amusement, and awe. It consists of 38 items (5 or 6 items per scale), and uses a 7-point rating format (from 1 = *strongly disagree* to 7 = *strongly agree*). A sample item is: "I often feel bursts of joy" (joy). Güsewell and Ruch (2012b) reported internal consistencies ranging from .58 (DPES awe) to .89 (DPES contentment) for the German DPES. In the current study, alphas ranged from .62 (DPES awe) to .88 (DPES contentment).

**Procedure**

*Data collection.* Volunteers were recruited via flyers, e-mails, Internet sites of popular psychological journals, and short articles about positive psychology published in Swiss magazines. Respondents were informed about the nature of the study and the fact that they could discontinue participation at any time. Furthermore, they were told participation would be unpaid, but that they would receive standardized feedback about their character strengths profile (VIA-IS) and be included in a raffle upon completion of the questionnaire. After reading this information, participants had to click on an "informed consent" box before they could proceed.

*Data analysis*. To verify whether Güsewell and Ruch's (2012a) *responsiveness to the good and beautiful* model would fit the data, a structural equation modeling analysis was computed using SPSS Amos (Version 18; Arbuckle, 2007). Three measurement instruments entered this analysis: the appreciation of beauty and excellence (ABE) subscale of the VIA-IS (Peterson et al., 2005), the EBS (Diessner et al., 2008), and the ABET (Güsewell & Ruch, 2012a). The model to be tested was comprised of a second-order factor of general *responsiveness* and three distinct, but related dimensions: sensitivity for beauty in nature and surroundings, sensitivity for artistic beauty, and sensitivity for non-aesthetic goodness. Additionally, the model included a method factor representing the systematic variance introduced by the fact that the ABET is a stimulus based test, whereas the two other measurement instruments are self-report questionnaires. Finally, it was assumed that the

residuals of the three EBS subscales might co-vary due to the specific emotional and bodily component of this questionnaire. Therefore, the corresponding error terms were allowed to correlate.

The fit of the model was tested using the p-value of the chi-square ($\chi^2$; Hair, Anderson, Tatham, & Black, 2006), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), and the root-mean-square error of approximation (RMSEA; Hu & Bentler, 1998). A GFI and an AGFI equal or higher than .90 indicate a good-fitting model; a GFI and an AGFI equal or higher than .95 an excellent-fitting model. For the RMSEA, values equal or lower than .08 can be interpreted as an acceptable fit.

To check for differences between the samples with respect to *responsiveness*, the disposition to experience different positive emotions, absorption, and sensation seeking, analyses of covariance (ANCOVAs) and standard contrasts were performed. In cases of violation of the sphericity assumption, multivariate test statistics were used. Partial $\eta^2$ was computed as an effect size index, with scores between .01 and .05, between .06 and .13, and higher than .14 indicating small, medium, and large effects respectively (Cohen, 1988).

## Results

### Primary analyses

Skewness and kurtosis of all scales indicated normal distribution. Correlations with demographics were generally modest in size ($\leq .24$), yet significant in some cases due to the number of participants. Being female was associated with higher scores on engagement with natural (.15) and moral beauty (.15), as well as dispositional joy (.23), compassion (.21), contentment (.13), and awe (.11). Being male, in turn, was associated with higher scores on all sensation seeking scales (BS = .11; TAS = .18; DIS = .24), except experience seeking (ES = .07). Age was positively related to dispositional contentment (.16), dispositional pride (.15), engagement with natural (.16) and artistic beauty (.12), as well as appreciation of art

(.15). Age was negatively related to all sensation seeking scales (ES = .14; DIS = .18; TAS = .20) except boredom susceptibility (BS = .09), and to dispositional amusement (.20). Therefore, all subsequent analyses controlled for the potential impact of these demographics.

**Structure of the sensitivity to beauty and goodness**

To verify whether the *responsiveness to the good and beautiful* model could be reproduced in this sample, the structural equation modeling analysis described in the methods section was carried out. The resulting model is shown in Figure 1.

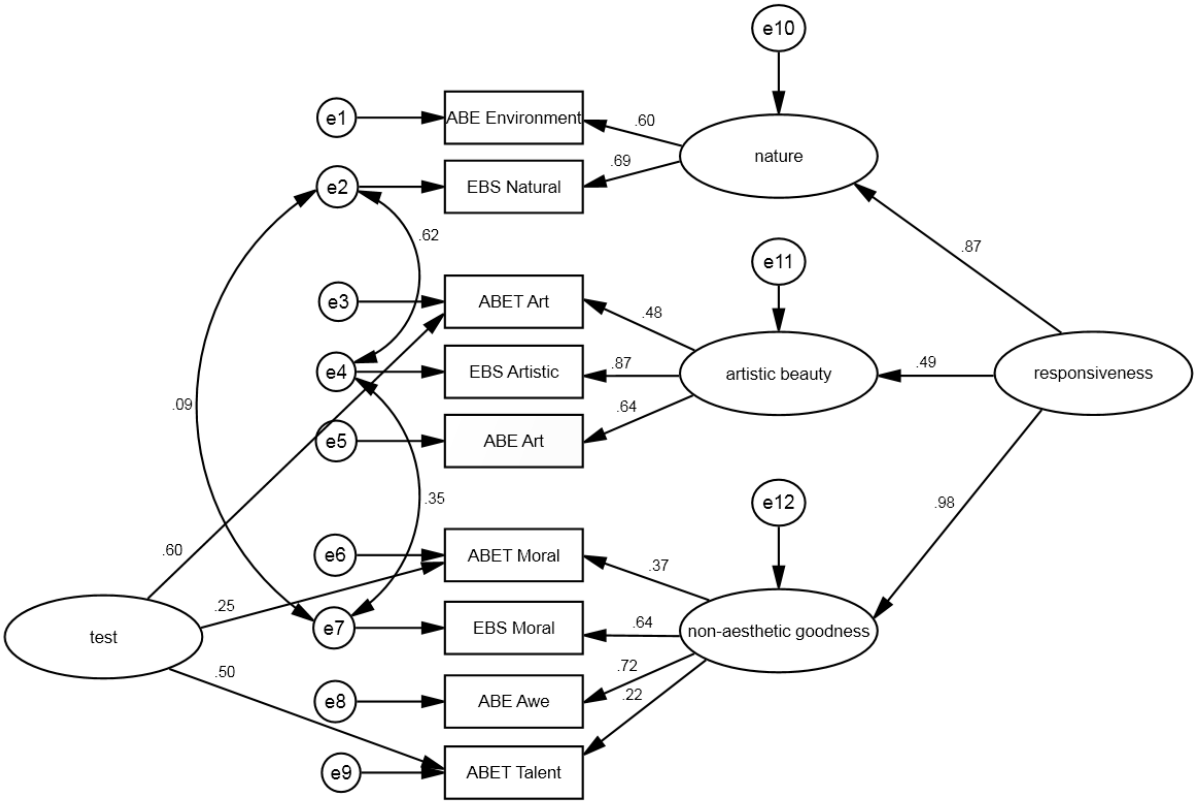


Figure 1. Responsiveness to the good and beautiful model (Güsewell & Ruch, 2012a), standardized solution for this sample.

In this study, the model had a fit of $\chi^2$ (19, N = 375) = 65.5, p < .001; GFI = .964, AGFI = .914, RMSEA = .080, which according to the criteria set forth in the methods section was considered satisfactory. Consequently, scores could be imputed for the four latent variables that the model includes (i.e., responsiveness, nature, artistic beauty, and non-aesthetic

goodness). Skewness and kurtosis of these variables indicated normal distribution. Women scored significantly higher than men for responsiveness (.16), non-aesthetic goodness (.19), and nature (.15), whereas older age correlated positively with responsiveness (.12), artistic beauty (.12), and nature (.12).

**Link between the sensitivity to beauty and goodness, and aesthetics-relevant constructs**

As a next step, the links between *responsiveness* and the disposition to experience different positive emotions, absorption, and sensation seeking were examined (see Table 1). Overall, the correlations between the r*esponsiveness* dimensions and the disposition to experience object- or situation-specific positive emotions[13] were higher (.30 to .64) than with the disposition to experience self-oriented positive emotions[13] (.17 to 34). In line with previous findings (Güsewell & Ruch, 2012b), the correlation with the disposition to experience awe was numerically highest of all *responsiveness* dimensions (.36 to .62). Strikingly, the link between responsiveness to artistic beauty and the DPES scores was systematically about half as high as the link between responsiveness to non-aesthetic goodness, or nature, and the DPES scores. This result suggested that responsiveness to artistic beauty is less emotional and more dependent on knowledge and cognition than responsiveness to nature and to non-aesthetic goodness. This assumption was further confirmed by the fact that only artistic beauty displayed a highly significant correlation with experience seeking (.30), a measure of the need for intellectually novel and challenging experiences, and that responsiveness to artistic beauty had the lowest correlation with absorption (.47 instead of .55 and .56), defined as an emotional responsiveness to engaging sights and sounds.

[13] For more details about the self-oriented and object- or situation-specific emotions, see Güsewell and Ruch (2012b).

Table 1. *Correlations*[a] *of the responsiveness dimensions with DPES awe, the DPES factors, SSS-V, and absorption.*

| | DPES | | | SSS-V | | | | |
|---|---|---|---|---|---|---|---|---|
| | Awe | Self | Other | TAS | DIS | ES | BS | Absorption |
| Responsiveness | .59*** | .31*** | .64*** | .07 | .04 | .11* | -.08 | .56*** |
| Artistic beauty | .36*** | .17** | .30*** | -.03 | .11* | .30*** | .03 | .47*** |
| Non-aesthetic | .58*** | .30*** | .64*** | .07 | .04 | .11* | -.08 | .55*** |
| Nature | .62*** | .34*** | .63*** | .11* | .02 | .09 | -.08 | .56*** |

*Note.* $N$ = 342 (men = 102, women = 240). Partial correlations, control for age and gender. Self = self-oriented emotions (i.e., joy, contentment, pride, love); other = object or situation specific emotions (i.e., compassion, amusement, awe).
[a]Pearson correlation.
*$p$ < .05. **$p$ < .01. ***$p$ < .001

**Differences between samples with respect to responsiveness and aesthetics-relevant constructs**

To examine whether professional musicians, amateur musicians, and persons without musical practice would show significant differences with respect to *responsiveness* and aesthetics-relevant constructs, univariate ANCOVAs were performed with musical practice as the independent variable (3 groups) and the r*esponsiveness* dimensions, DPES awe, the experience seeking subscale of the SSS-V, and the absorption scale as dependent variables. Age and gender entered the analyses as covariates. Planned contrasts were computed whenever ANCOVAs showed a significant main effect (see Table 2).

Table 2. *Comparison among professional musicians, amateur musicians, and persons with no musical practice on the responsiveness dimensions, DPES awe, SSS ES, and absorption.*

| | Groups | | | Test | | |
|---|---|---|---|---|---|---|
| | musician | amateur | no musical practice | F | *p* | $\eta^2$ |
| Model | | | | | | |
| Responsiveness | 2.26 | **2.32** | 2.25 | 2.09 | .125 | .01 |
| Artistic | **1.57**[a] | 1.47[b] | 1.41[b] | 9.87 | .001 | .06 |
| Non-aesthetic | 2.29 | **2.35** | 2.29 | 2.07 | .127 | .01 |
| Nature | 2.59 | **2.68** | 2.61 | 2.58 | .077 | .02 |
| DPES | | | | | | |
| Awe | 4.67 | **4.86** | 4.76 | 1.20 | .302 | .01 |
| SSS | | | | | | |
| ES | **6.92** | 6.51 | 6.56 | 1.72 | .182 | .01 |
| Absorption | **22.18** | 21.83 | 20.68 | 2.26 | .106 | .01 |
| N | 92 | 125 | 125 | | | |

*Note. N = 342*. ANCOVAs were performed and, where significant, followed by planned contrasts (musicians against the other two groups). Bold indicates the highest score on each of the dimensions or scales. Means after correction for age and sex. Significant differences between conditions ($p \leq .05$) are coded with different letters.

As can be seen from Table 2, professional musicians scored highest on responsiveness to artistic beauty, experience seeking, and absorption, whereas amateur musicians scored

highest on overall responsiveness, responsiveness to nature, and responsiveness to non-aesthetic goodness. Professional musicians displayed a specific artistic sensitivity, whereas amateur musicians showed a more general heightened sensitivity to different types of beauty and goodness. Overall, these findings were in line with the idea of a link between musical practice and the sensitivity to beauty and goodness. However, except for responsiveness to artistic beauty where the effect was of medium size ($\eta^2 = .06$), the ANCOVAs indicated only small effects (Cohen, 1988) of the group affiliation on the dependent variables ($\eta^2 \leq .05$), and the only significant difference concerned the responsiveness to artistic goodness score of professional musicians as compared to the scores of the two other groups.

The last research question concerned the differences between instrumental teachers, orchestra musicians, and soloists. Again, univariate ANCOVAs were performed with musical practice as the independent variable (3 groups), the *responsiveness* dimensions, DPES awe, Sensations Seeking, and absorption as dependent variables, and age and gender as covariates. None of these ANCOVAS indicated a significant main effect. However, the scores of soloists were clearly above those of teachers and orchestra musicians on all measures. Therefore, a third analysis was conducted comparing soloists, amateur musicians, and persons without musical practice (see Table 3).

Table 3 shows that soloists scored higher than amateur musicians on all of *the responsiveness* dimensions as well as on the other three measures; amateur musicians in turn scored higher than persons without musical practice. The differences between soloists and persons without musical practice were significant for overall responsiveness, responsiveness to artistic beauty, responsiveness to beauty in nature and the surroundings, and experience seeking.

Table 3. *Comparison among soloists, amateur musicians, and persons with no musical practice on the responsiveness dimensions, DPES awe, SSS ES, and absorption.*

| | Groups | | | Test | | |
|---|---|---|---|---|---|---|
| | soloist | amateur | no musical practice | F | *p* | $\eta^2$ |
| Model | | | | | | |
| Responsiveness | **2.40**[a] | 2.32 | 2.25[b] | 3.16 | .044 | .03 |
| Artistic | **1.69**[a] | 1.47[b] | 1.41[b] | 8.04 | <.001 | .06 |
| Non-aesthetic | **2.44**[a] | 2.35 | 2.29[b] | 3.10 | .047 | .03 |
| Nature | **2.74** | 2.68 | 2.61 | 2.24 | .108 | .02 |
| DPES | | | | | | |
| awe | **5.08** | 4.86 | 4.76 | 1.18 | .308 | .01 |
| SSS | | | | | | |
| ES | **7.69**[a] | 6.51[b] | 6.56[b] | 3.36 | .036 | .03 |
| Absorption | **23.62** | 21.83 | 20.68 | 2.71 | .068 | .02 |
| N | 15 | 125 | 125 | | | |

*Note. N = 265.* ANCOVAs were performed and, where significant, followed by planned contrasts (soloists against the other two groups). Bold indicates the highest score on each of the dimensions or scales. Means after correction for age and sex. Significant differences between conditions ($p \leq .05$) are coded with different letters.

## Discussion

This study contributed to the further validation of *responsiveness to the good and beautiful* by taking a close look at its expression in persons involved in different degrees of musical practice, and by assessing whether it correlated with measures of aesthetics-relevant constructs in a theoretically meaningful manner.

The results demonstrated that, consistent with predictions, *responsiveness* was related to the degree of involvement in musical practice. However, results also suggested that this relationship might not be simply linear, but rather needs to be differentiated. Two kinds of individuals high on *responsiveness* could be distinguished in this research: those who displayed an overall, generally heightened sensitivity to all types of beauty and goodness (i.e., amateur musicians, soloists), which is in line with theoretical models and assumptions

(Diessner et al., 2008; Güsewell & Ruch, 2012a; Haidt & Keltner, 2004); and those who displayed a specific, standalone sensitivity to artistic goodness, a distinct "art-responsiveness" pattern (i.e., music teachers and orchestra musicians), which is in accordance with the assumption that specific *responsiveness* profiles might exist as well. Of course, the validity of this interpretation is pending further examination, using external or real life criteria, of the proposed distinction between aesthetic beauty and non-aesthetic goodness.

These results hinted at the idea that it is neither the musical occupation, nor professional training, which are crucial for a well-balanced *responsiveness* profile, but rather the recurrent, actual opportunity to express oneself through artistic activity. Professional musicians earning their main income through concerts as soloists or as members of small ensembles (i.e., up to four musicians, no conductor) have this opportunity regularly -- although they may be teaching or playing in orchestras on occasion. Amateur musicians, in turn, are neither bound to the expectations of a public, nor to conventions or economical necessities, and thus can express themselves freely. By contrast, teachers hardly find time and energy outside of their pedagogical activities to concentrate on their instrument and interpretation. The group that certainly is the least homogeneous with respect to artistic activity is the one of orchestra musicians. Some of these musicians may be playing full-time in mid-level orchestras; others may have no regular employment and are travelling around to pick up low-paid gigs. These musicians probably subordinate their musical inspirations and ideas to the intentions of mediocre conductors, and their commitment to the group leads to them feeling like highly specialized "craftsmen" or "craftswomen" rather than like artistic personalities, which would fit in with the *responsiveness* profile displayed in this research by the orchestra subsample. However, most certainly, other musicians are employed in high standard orchestras, playing a demanding, varied repertoire under the direction of outstanding conductors, an activity that entails strong artistic and expressive involvement, and thus would

rather speak to a *responsiveness* profile close to the one of soloists. Taken together with the small effect sizes, these findings call for a closer look at, and a finer-grained analysis, of the musicians' actual artistic activities, in subsequent research. This would allow for the creation of more homogeneous groups prior to the comparison of their *responsiveness* profiles.

The *responsiveness to the good and beautiful* dimensions correlated in a theoretically meaningful way with the three art-related constructs that were examined in this research: the disposition to experience positive emotions, in particular, awe, sensation seeking, and absorption. The main outcome of this analysis was that responsiveness to artistic beauty was related more closely to experience seeking and less closely to dispositional positive emotions and absorption than the other *responsiveness* dimensions. This suggests that being appreciative of art is -- at least partly -- dependent on the corresponding knowledge, and is therefore not only an emotional, but also a cognitive experience.

One important question remains open: what about activities that are not artistic, yet linked to the sensitivity to beauty and goodness, such as sports, religion, or psychology? Do individuals who are engaged professionally or as amateurs in these activities display a specific sensitivity to non-aesthetic goodness? This question was tentatively examined by Diessner et al. (2008), who hypothesized that education and psychology majors would score higher on engagement with moral beauty than would art and music students. However, this result was not confirmed. In a related vein, Güsewell and Ruch (2012a) checked for a link between sports as a leisure activity and an above average sensitivity to skills and talents. Yet, their data also did not give empirical support to such a link. Further research is therefore needed to examine whether results would be more conclusive if professional psychologists or athletes were considered, or if other professional areas and other leisure activities were taken into account.

The main limitation of this study is its correlational nature: comparing means allows for the establishment of significant differences between groups, but does not allow for any assertions regarding causality. Is the lower *responsiveness* level of instrumental or vocal teachers, and of orchestra musicians due to their working environment, or did these musicians apply for their jobs because they were less engaged with beauty and goodness? Are soloists successful because they bring along a pronounced *responsiveness* to all types of beauty and goodness, or did they develop it through concert practice? Do amateur musicians choose their hobby because of a specific sensitivity to beauty and goodness, or do they cultivate the latter through musical practice? To address these and similar questions, it is necessary to assess the long-term evolution of the sensitivity to beauty and goodness, from childhood through musical studies, and throughout life. The use of a mixed-methods research design combining psychometric methods with qualitative approaches should be considered as it would allow for a more in-depth investigation and comprehension of the artistic topics of interest.

The samples were constituted according to the response of participants to a single question regarding their present musical (in)activity. However, other factors might have an impact on the primary dependent variables of interest, such as engagement in other forms of art, musical listening habits, or (un)familiarity with contemporary art. Additionally, as participants were self-selected, the possibility that those who took part might be different from those who did not (i.e., non-response bias)--and are therefore not representative of their respective populations--should be taken into account.

In studies using self-report questionnaires, response bias is a possible source of distortion of results. Response bias relates to the tendency of respondents to give answers that they believe the questioner or society in general might approve of, answers that fit into the image they have or would like to give of themselves, or answers they assume might help to promote some desired goal of their own. The present study did not yield any goal or outcome

relevant to the participants. However, it is conceivable that some respondents, musicians in particular, be they professionals or amateurs, wanted to convey a certain impression of themselves, or attempted to oblige the researchers. The fact that the research was neither about deciding what is actually beautiful or excellent, nor about giving right or wrong answers, but about personal, subjective, and spontaneous reactions or feelings, was highlighted in the test instructions, and participants were prompted to answer the questions in a timely manner, without long pondering, speaks to the prevention of this type of bias. Additionally, to prevent answer patterns, the tests, questionnaires, and even items (ABET) were presented in a varied order. Finally, any reference to the specific aims of the study, in particular the comparison between musicians and non-musicians, was carefully avoided.

The fact that in this study, responsiveness to artistic beauty seemed to be less emotional and more dependent on knowledge than other types of beauty and goodness, pointed to the possibility that another form of response bias might have been an issue, a bias related to education. Art always relates to a particular culture, a religious, philosophical, and historical context; it is perceived against the background of what a society (or a sub-group of society) considers to be beautiful, or valuable; it is understood, experienced, and appraised through an evaluation grid composed of cultural background, knowledge, and socialization. Haidt and Keltner (2004) aimed at "broadening the scope of stimuli beyond classical conceptions of beauty and the arts" (p. 538) to make "this strength less a product of education class, and political ideology, and more accessible to people who have had little exposure to poetry and art museums, and little encouragement to develop an appreciation of high culture" (p. 538). Our findings encourage going even one step further, and developing a culturally-independent measure that would not include any item relating to art, but rather would rely on visual patterns and sounds (instead of art and music), on natural beauty, and on short stories or video-clips requiring neither historical knowledge, nor specific cultural background, to be

appreciated. Thus, studies, comparisons, and generalizations around the globe would be possible; the impact of socialization, age, educational level, affiliation to a subculture, language skills, and migrant background would be minimized. Finally, professional or amateur artists (e.g., musicians) could be studied without being experts in their respective fields. This, and only this, would then allow the assessment of whether, and to what extent, musicians are more sensitive or responsive to beauty and goodness than the general population.

This study expands existing knowledge not only on responsiveness to the good and beautiful, but also on the personalities of musicians. However, further research on the sensitivity to beauty and goodness is needed not only to derive health benefits for and prevent burnouts in orchestras or to counsel professional musicians, but also to promote music education that fosters emotional involvement and that goes beyond merely developing theoretical knowledge and technical skills.

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# GENERAL DISCUSSION

The principal aim of the present research was to extend the current scientific knowledge on the sensitivity to beauty and goodness, more precisely to contribute to its further validation. The main outcomes of three studies that were conducted will now be summarized, theoretical and practical implications as well as limitations discussed, and finally an outlook on possible subsequent research given.

## Overview of the main results

As there was no one-to-one correspondence between the three studies and the six research questions, the contents and aims of the studies will be summarized first and the main findings - organized according to the research questions – recapitulated thereafter.

### Content and aims of the three studies

The objectives of the first study were twofold: on the one hand, the development and validation of a German adaptation of the DPES, on the other hand, a first investigation of the links between character strengths and dispositional positive emotions. Additionally, the factorial structure of the DPES and the "emotional pattern" of the five VIA-IS factors were examined. The purpose of the second study was threefold: first, the validation of the newly developed ABET; second, the examination of the correlations between two existing self-report measures of the sensitivity to beauty and goodness (i.e., ABE and EBS) and the new stimulus-based test (i.e., ABET); finally, the investigation of the factorial structure of the sensitivity to beauty and goodness. The third study had three goals as well. Firstly, to examine whether the *responsiveness* model could be reproduced (and thus further validated) in a new sample. Secondly, to compare professional and non-professional musicians as well as different subgroups of professional musicians with respect to their responsiveness to different types of beauty and goodness. And thirdly, to correlate the dimensions of the

*responsiveness* model with absorption, sensation seeking, and the disposition to experience different positive emotions, awe in particular.

**Research questions and main findings**

The first research question concerned the relations between the existing two self-report measures of the sensitivity to beauty and goodness (i.e., ABE and EBS) and a more objective (i.e., stimulus-based) test which would address not only physical and moral beauty, but also skills and talents. The correlations between ABE and EBS proved to be high enough to support the idea that these two instruments measure the same construct, and low enough to hold that they are not identical but complementary. As predicted, the correlations of the new stimulus based test (i.e., ABET) with the two self-report questionnaires were numerically lower, reflecting the difference between measurement methods. Appreciation of skills and talent (i.e., ABET Talent) displayed the lowest correlations with ABE and EBS, a result which was not surprising considering that neither of the latter comprises items relating to outstanding achievements, that is to non-moral excellence.

The second research question was about the factorial structure of the sensitivity to beauty and goodness, more precisely about the number and nature of the dimensions it comprises. To answer this question, the ABE, EBS, and ABET were included into a structural equation modeling analysis and different 2- and 3-dimensional models examined. The model which had the best fit in the sample studied was three-dimensional, with a second-order factor of responsiveness as well as three distinct, but related dimensions corresponding to the sensitivity to natural (or environmental) beauty, artistic beauty, and non-aesthetic goodness. Haidt and Keltner's (2004) assumption of a distinct sensitivity for the excellence of outstanding skills or talents could not be empirically confirmed. The resulting, tentative model which was named *responsiveness to the good and beautiful* could be reproduced and thus further validated in a second sample (study 3).

The third research question addressed the convergent and discriminant validity of the sensitivity to beauty and goodness with regard to sensation seeking and absorption. As theoretically predicted, all responsiveness dimensions were highly and significantly correlated with absorption, whereas of the four sensation seeking scales only ES displayed significant correlations with overall responsiveness and two of the responsiveness dimensions. The unpredicted and therefore particularly interesting finding was the fact that only one of the correlations between ES and the responsiveness dimensions was highly significant, namely the one with responsiveness to artistic beauty. As experience seeking is a measure of the need for intellectually novel and challenging experiences, this suggested that responsiveness to artistic beauty is more dependent on knowledge and cognition, and less emotional than responsiveness to nature and responsiveness to non-aesthetic goodness. This assumption was further confirmed by the fact that responsiveness to artistic beauty displayed the lowest correlation with absorption, defined as an emotional responsiveness to engaging sights and sounds.

The fourth research question pertained to the relation between the sensitivity to beauty and goodness and the disposition to experience different positive emotions, awe in particular. Overall, the correlations of the responsiveness dimensions with the disposition to experience object- or situation-specific positive emotions (i.e., compassion, amusement, awe) were higher than with the disposition to experience self-oriented positive emotions (i.e., joy, contentment, pride, love). If the seven dispositional positive emotions included in the DPES were examined separately, the correlation with the disposition to experience awe was the numerically highest for all responsiveness dimensions, in line with both previous research and theoretical predictions. Strikingly, the link between responsiveness to artistic beauty and the DPES scores was systematically the lowest, fitting in with the above-discussed idea that

responsiveness to artistic beauty might - at least partly – be dependent on a specific knowledge and therefore rather a cognitive than an emotional experience.

The fifth question asked whether professional musicians as a group would differ from non-musicians with regard to the sensitivity to beauty and goodness. Results demonstrated that, consistent with theoretical predictions, the sensitivity to beauty and goodness was related to the degree of involvement in musical practice. However, this relation proved not to be simply linear. Taken as a group, musicians displayed a specific sensitivity to artistic beauty, whereas amateur musicians (as compared to persons without musical practice) were characterized by a moderate but consistent increase of the sensitivity to all types of beauty and goodness. These findings suggested that two kinds of persons high on appreciation might exist: those who display a specific, standalone sensitivity to one type of beauty and goodness (in our case, artistic beauty) and those who display a generally heightened sensitivity to all types of beauty and goodness.

The sixth research question examined whether subgroups of professional musicians differed with regard to *responsiveness*. Comparing the scores of music teachers, orchestra musicians, and soloists revealed that these three groups were not homogeneous with respect to their "*responsiveness* profiles". Whereas orchestra musicians and instrumental or vocal teachers were particularly responsive to artistic beauty, soloists proved to be outstandingly responsive to all types of beauty and goodness. The differences between the three musicians' subgroups were not significant and should therefore be considered as trends for the time being. In turn, the comparison of soloists, amateur musicians, and persons without musical practice yielded highly significant results.

## Implications

### Validity of appreciation

John and Soto (2007) outlined five key aspects of construct validity which were all addressed in this research: (1) The ABET complemented the existing two self-report questionnaires with a more objective test and thus contributed to the diversification of measurement methods, that is to *generalizability* (i.e., generalization of scores and their interpretations across contexts, occasions, measures and raters); (2) The sensitivity to skills or talents, although included in the Haidt and Keltner's (2004) theoretical model, was not covered by the ABE. The ABET filled this gap and thus touched *content validity* (i.e., relevance, coverage, and quality of the measurement strategy); (3) The research substantially added to the *structural validity* (i.e., the factor structure of a measure is consistent with the hypothesized structure of the construct) of the sensitivity to beauty and goodness by empirically checking structural models proposed in the literature, as well as possible variants; (4) Correlating the sensitivity to beauty and goodness with sensation seeking, absorption, and the disposition to experience positive emotions was a contribution to the *external validity* (i.e., convergent and discriminant validity); (5) Whereas the last decade focused mainly on the relation of the sensitivity to beauty and goodness with happiness or well-being, this research investigated its link with musical practice and thus conduced to *substantive validity* (i.e., link to theoretically expected underlying processes).

### For the VIA-classification and the VIA-IS

The five-factor solution resulting from a factor analysis of the VIA-IS which had already been reported several times in the literature (Littman-Ovadia & Lavy, 2012; Peterson & Seligman, 2004; Ruch, Proyer, Harzer, Park, Peterson, & Seligman, 2010) could well be reproduced and thus further confirmed in this research. The additional finding was the fact that each of the five character strengths factors (i.e., emotional strengths, interpersonal

strengths, strengths of restraint, intellectual strengths, and theological strengths) displayed a distinct correlation pattern with the dispositional positive emotions. This lead to the hypothesis that the "emotional component" of character strengths, which are conceived as "thoughts, feelings, and/or actions" (Peterson & Seligman, 2004, p. 23), might lie behind the factorial structure of the VIA-IS, in other words that the specific connection to positive emotions some of the character strengths share brings them together as factors.

In the general introduction, the fact that the Appreciation of Beauty and Excellence (ABE) subscale of the Values In Action Inventory of Strengths (VIA-IS; Peterson, Park, & Seligman, 2005) comprises no items relating to skills or talent - although this is one of the three sensitivities posited in Haidt and Keltner's (2004) model of *appreciation* - was discussed. This raised the question whether or not the scale would advantageously be complemented with such items. It appears from the *responsiveness to the good and beautiful* model that skills or talent are not a distinct dimension of the sensitivity to beauty and goodness and therefore need not being explicitly addressed. In fact, the initial question has shifted, as the ABE scale does not tap natural beauty either but rather the general environment or the surroundings (e.g., "world of beauty", "beauty of the environment"), which does not fit in with the finding of nature as a distinct responsiveness dimension. Nevertheless, we would speak for a provisional retention of the ABE scale as it is: first, because the *responsiveness to the good and beautiful* model is a tentative one and needs further empirical confirmation; second because the ABE proved to be highly and significantly correlated with overall responsiveness and the three responsiveness dimensions.

**For practice**

Advocates of art and music education tend to draw on research findings that stress the benefits of these classes for learning and academic achievement to attract funders and to convince policy makers. However, the question is whether such an "instrumentalizing" of art

and music are legitimate and if artistic and aesthetic experiences do not have a more genuinely intrinsic value? The finding that multiple, distinct links exist between dispositional positive emotions and character strengths, for example between *appreciation of beauty and excellence* and the disposition to experience awe, love, compassion, and amusement is thus crucial, as it highlights the immeasurable long-term benefits art and music education may have on individual development and well-being, and more generally on society.

A second finding with practical implications is the corroboration of a close link between "multiple channels by which people can connect to [beauty and] excellence around themselves" (Haidt & Keltner, 2004, p. 538). The fact that the sensitivities for different types of goodness go together in most individuals suggests that spending time on art or music at school might have a positive impact on the moral development of pupils[14], and that vice-versa, engagement in ethical questions might nurture their sensitivity to non-moral beauty and excellence. And this, in turn, gives directions for the development of new school curricula, respectively supports already existing, innovative models[15]: instead of holding separate music, art, and ethics classes, it would seem promising to combine these topics into a new, more comprehensive school subject. However, just grouping existing subjects without changing the didactical approach would not yield the expected outcomes: the a*ppreciation of beauty and excellence*, *engagement with beauty*, and *responsiveness to the good and beautiful* models all three emphasize - to different degrees - the importance of emotional engagement. Therefore, if arts, aesthetics, or ethics classes are to have a real impact on the development of children and adolescents, the focus would need to change from the development of skills and

[14] In line with the ancient Greeks' idea that the beautiful cannot be distinguished from the good, and with Plotinus' idea that human beings undergo a development in theirs ability to react to excellence: they start from the contemplation of sensuous beauty, and then delight in beautiful deeds, moral beauty, the beauty of institutions, and thus gradually approach the abstract, platonic type of beauty.

[15] Amadio, Truong, and Tschurenev (2006): „Instructional time and the place of aesthetic education in school curricula at the beginning of the twenty-first century".

techniques or the acquisition of knowledge[16] to the nurturing of deep experiences of beauty and more generally of emotional involvement.

Finally, the differences between the responsiveness-profiles of different subgroups of professional musicians, with only soloists displaying an overall, pronounced sensitivity to all types of beauty and goodness, give important directions for music education: following these results, the aim for an optimum musical education should be the fostering of the sensitivity to as much types of beauty and goodness as possible, in order to develop broadly appreciative, well-balanced, complete artistic personalities instead of highly specialized "craftsmen" or "craftswomen". Here again, the accent would need to be on emotional engagement and not only on the development of technical skills and knowledge. For the most part, this is not a new idea: in past centuries, young musicians used to be immersed into an artistic milieu which allowed for extensive exchanges with other artists and other forms of art. It is not until the mid of the 19th Century, with the emergence of Conservatories, that music education progressively narrowed down to an as early as possible maximum specialization.

## Limitations

### Conception of the ABET

The ABET which was created for the purpose of this research showed good reliability as well as convergent validity and may therefore well be considered for ongoing research. However, a few limitations of this instrument should be mentioned as they hint at possible elaborations and improvements. Firstly, the fact that most of the stimuli were firmly established in the socio-cultural context in which the research took place; this raised the question of a culture-free or rather cross-cultural ABET which would rely on visual patterns and sounds (instead of art and music), on natural beauty, and on short stories or video-clips addressing universally shared displays of excellence or virtue; such an ABET would require

[16] Consequently, the new subject to be developed might be labeled appreciation (or engagement, or responsiveness) classes.

neither historical knowledge nor specific cultural background to be taken. The advantages of a culture-free ABET are not far to seek: on the one hand, studies, comparisons, and generalizations around the globe would be possible, on the other hand, the impact of socialization, level of education, affiliation to a subculture, language skills, and migrant background minimized. Secondly, in order to keep the length of the ABET within a reasonable range, the number of items had to be circumscribed which was contrary to the aim of presenting participants with an item-pool as diverse and as extensive as possible. A solution to overcome this problem would be to conceive an online study comprising a much larger pool of items but to present only a few, randomly selected items to each participant. Thus, content validity would be achieved by collecting the data of many respondents who would rate only a few items, instead of asking a few participants to rate as many items as possible. This procedure would allow overcoming a third concern, namely the question whether an emotional response to beauty or excellence can be elicited many times in straight succession. Fourthly, if an online-survey is appropriate for any type of artistic beauty items, it is less suitable for items relating to the beauty of nature, to skills or talents, and to moral goodness. Therefore, one major challenge for future research on the sensitivity to beauty and goodness will be to conceive study designs which allow for more "real-life" conditions, especially with respect to nature, which not only involves sight and audition, but also olfaction and tactile sense. Fifthly, the ABET was developed mainly to complement the existing self-report questionnaires with a more objective test. However, although respondents were presented with concrete beauty and goodness stimuli instead of general statements about their reactions to such stimuli, the answer format of the ABET in itself still is a self-rating. Replacing the ratings of the extent to which "beauty" or "excellence" are experienced by descriptions of bodily changes or of cognitions and motivations and complementing these

data with the observation of facial displays or with measures of physiological reactions would thus be a perfected approach.

**Structural equation modeling**

None of the three measurement instruments included into the structural equation modeling analysis (ABE, ABET, and EBS) addressed the four dimensions which were to be differentiated (i.e., natural beauty, artistic beauty, skills or talents, virtue or moral goodness). Consequently, responsiveness to artistic beauty and moral goodness were assessed with three indicators, whereas responsiveness to nature and environment was assessed only with two indicators, and skills and talents even only with one. To further validate the *responsiveness* model and thus the factorial structure of the sensitivity to beauty and goodness, the ABE, EBS, and/or the ABET would need to be completed with items relating to the dimensions missing. Alternatively, additional new instruments (e.g., physiological measures or peer-report questionnaires) encompassing the four dimensions might be developed.

**Data collection**

As data were collected by means of an online survey, participants were self-selected which must not but might have led to a biased sample. The title of the study, "Der Sinn für das Schöne" (i.e., appreciation of beauty), may have attracted specific participants, for example persons who assumed themselves to be highly sensitive to beauty and goodness or persons with a particular interest in beauty and art. Furthermore, the length and the technical challenges of the online-survey as well as the contents and the type of questions asked might have discouraged specific categories of participants, although, on first sight, the different samples seemed to be well-balanced with respect to age, sex, profession, educational level, and occupational status. With respect to professional musicians, self-selection probably played a somewhat more important role, as most musicians are not willing to spend a lot of

time away from their instrument, filling in a survey on their computer, and as elder musicians are over-averagely unfamiliar with the computer.

## Open questions and further research

### Difference between excellence and beauty

A first question that remained open concerns the differences and similitudes as well as the relations between beauty and excellence. Haidt and Keltner (2004) assumed beauty to be experienced in response to physical and excellence in response to non-aesthetic goodness. Diessner et al. (2008), in turn, distinguished between an act which is cognitively identified as one of goodness (i.e., excellence) and an act which is emotionally experienced as moving and elevating, that is as one of beauty. Thus, whereas in the *appreciation* model the distinction between beauty and excellence depends on the nature of the stimulus, in the *engagement with beauty* model it depends on the emotional involvement of the observer.

Several questions arise from each of these two definitions of beauty and excellence. In the case of the *appreciation* model, it is unclear whether exclusively beauty is experienced in response to physical goodness and only excellence in response to non-aesthetic goodness or if they both are usually involved to different degrees. Many examples challenge the clear one-to-one correspondence presented in the theoretical model. Artistic beauty, for example, usually encompasses the excellence of its creator or interpreter. Does the listener or observer experience this excellence as distinct of the beauty of the artistic object? Contemporary art or music are often not perceived as beautiful; are they nonetheless sensed as excellent? The "outcomes" of athletic, acrobatic, or artistic skills and talents unavoidably include a component of visual or auditory beauty, whereas in "non-physical" excellence (e.g., an excellent teacher) this component is missing. In which case is beauty prevailing, in which case excellence, and when are they both involved? Are some persons particularly prone to

focus rather on one than on the other? And finally, what would be the difference between moral beauty and moral excellence?

The distinction between beauty and excellence proposed in the *engagement with beauty* model raises another question. Following Diessner et al. (2008), natural, artistic, or moral goodness may be observed and cognitively perceived as excellent without arousing emotions. Thus, a pianist with great technical skill may be perceived as "excellent" without eliciting any emotional reaction in the listener. Does the opposite also hold true, in other words could beauty be sensed without the feeling of excellence? For example, is it possible to listen to a pianist and find his or her music "beautiful," that is be moved and emotionally aroused, although his or her technical excellence is by far not as high as the previous pianist? Or would it be possible that someone has no knowledge about literature but nevertheless intuitively experiences a poem as beautiful?

**Emotions**

Haidt and Keltner (2004) suggested that aesthetic goodness would elicit awe, skills or talents admiration, and virtue or moral goodness elevation. Later, Algoe and Haidt (2009) further developed this idea and proposed a prototype-based approach to awe that explicates how varieties of this emotion (i.e., awe-related states) are felt. In this theoretical model, awe is conceived as a prototypical emotional response to vast stimuli which need accommodation and which may be flavored by five situational themes. Three of these situational themes were of more particular interest within the scope of this dissertation, namely, beauty (which leads to aesthetic pleasure), ability (which leads to admiration), and virtue (which leads to elevation).

Both theoretical models raise the same question, namely: can these three emotions be distinguished and if so, how? Algoe and Haidt (2009) proposed an interesting empirical approach to this question. In a study on the *other-praising* emotions admiration, elevation,

and gratitude they asked participants to rate physical sensations, motivational effects, and relationship consequences. Elevation was reported to elicit a warm feeling in the chest, to motivate to become a better person and do good deeds, and to lead to more openness to others in general, whereas admiration seemed to elicit a feeling of energization, the motivation to work harder towards success, and the desire to be close to the admired other. Gratitude, in turn, aroused no clear bodily sensation but the motivation to repay and praise the benefactor and the desire of a closer relationship with him. It would be an interesting extension of this research to cross self-reports with measures of physiological activation or relevant biological markers (see Oveis, Cohen, Gruber, Shiota, Haidt, & Keltner, 2009) and with brain imagery. With respect to the latter point, two recent studies (Englander, Haidt, & Morris, 2012; Immordino-Yang, McColl, Damasio, & Damasio, 2009) using an fMRI scanner gave a first glimpse of the neurological underpinnings of the *self-transcendent* or *other-praising* emotions admiration, compassion, and elevation. Specific brain areas seemed to be involved in each of the self-transcendent emotions, which means that a cooperative research involving psychologists as well as neuroscientists would allow a deeper understanding of the differences between the members of the *self-transcending* (and other) positive emotions family.

**Personalities of musicians**

This research was a first attempt to extend research on the personality profiles of musicians beyond what was done in the 1980s and 1990s, moving on from the search for differences between the players of different instruments - with means of the always same three measurement instruments - towards the exploration of new subgroups (i.e., including amateur musicians and grouping professional musicians according to their main activity instead of their main instrument) and towards the assessment of personality characteristics more closely related to musical practice. The findings, which would need to be confirmed in

other and above all greater samples, suggested that this new field of research is a promising one. Another categorization of musicians might yield interesting results as well, namely the style of music mainly played, for example jazz versus classical music. This categorization is particularly interesting in that it could be applied to amateur musicians as well and even extended to persons without musical practice (if the musical style mainly listened, instead of played, was considered).

Another line of research could examine the outcomes of the different *responsiveness* profiles displayed by the musicians: Which profile is related to work satisfaction, well-being, and professional success within different working contexts, such as music school, orchestra, chamber music ensemble, or opera? And which profile is linked to greater artistic success and emotional involvement of the audience? Finally, a long-term study might investigate whether differences in the *responsiveness* profiles do exist before young children start playing an instrument, how profiles evolve during pre-professional education and professional studies, if such differences are related to academic achievement, if they are contingent on the choice of a working context, and if they change during professional life, in conjunction with the requirements of the job.

## Conclusion

A few years ago, in a BBC broadcast about "why beauty matters", philosopher Roger Scruton (2009) said: "I think, we are losing beauty, and there is a danger that with it we will lose the meaning of life." This statement is worth considering: not only is contemporary art at risk of losing beauty, as was discussed in the introduction, but more importantly, being out for money, profit, achievement, rationalization, time saving, structure, and orderliness, may lead, on the larger economic and political level, to consider beauty, excellence, and moral goodness as superfluous, as a waste of both time and money. However, on the individual level, we observe that even at the beginning of the 21st century people keep looking out for

ways to connect with beauty and excellence around them and thus to create enriched, awe-filled lives. Why is this? In accordance with Scruton, I'm certain that beauty, excellence, and moral goodness give meaning to our lives. But in contradiction to him, I am profoundly convinced that this is the exact reason why humankind is not at risk to lose them. They have been core aspects of human life since ancient times and they will keep being central.

Philosophers have strived for centuries to understand and to conceptualize beauty, truth, and the good, but these notions kept escaping, which certainly is constitutive for their magic. Quite likely, it will never be possible to uncover all their secrets – fortunately! However, the recently born positive psychology offers a new, empirical approach to the question and may thus contribute to disclose some of the mysteries of the sensitivity to beauty and goodness. The present dissertation gave first insights into this fascinating area of research and most notably calls for further investigation.

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